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United States Naval Institute

Proceedings

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ENGAGEMENT BETWEEN "ENTERPRISE" AND "BOXER" OFF MONHEGAN, SEPTEMBER 4, 1813

(After painting by Walter F. Landsil)
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(Our Navy and the West Indian Pirates—Goodrich)

UNITED STATES NAVAL INSTITUTE PROCEEDINGS

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

BATTLESHIPS

By COMMANDER RALPH EARLE, U. S. Navy

Motto: "Battleships are cheaper than battles"

The Question.—Is the defence of our coast and incidentally aggressive action better provided for on the expenditure of a given amount in construction by the building of large battleships than by the building of a greater number of small battleships?

Introductory.—As the foregoing question is considered the first impulse, based on the teachings of naval tactics, is to decide that the large battleships are the preferable. As the subject, however, is investigated at length, the realization is forced home that there are existent many factors that limit the practical size of war vessels, all of which are theoretically possible of removal, yet actually impossible of elimination, and that, therefore, the presence of these elements must be realized as well as the fact that they will always exist. This line of thought will lead to the careful consideration of the utility of the medium-sized battleship, and to question whether, even now, naval construction may not have plunged ahead too fast in the design of battleships, the tonnage of which must eventually be limited by bounds other than those of the high sea, and which cannot fail of being given proper weight, if the practical and reasonable view in the premises is to be taken.

The worth of large battleships as compared with the worth of a greater number of smaller battleships must be considered and discussed from the viewpoints of strategy, tactics, the limitations imposed by the channels of ports, the size of dry docks and repair

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stations, the maximum probable or reasonable expenditures for new constructions, and the yearly cost of the maintenance of the fleet.

The determination of the size of battleships must be made along such lines giving proper weight to each factor. The whole question is one of compromises and sufficient reasons can be found to confirm any decision that may be made, this decision being dependent only upon the weights assigned each of the many factors.

What are the real reasons for the recent great increase in the displacement of war vessels? The direct causes undoubtedly are the necessity for obtaining speed, protection, offensive power and long-cruising radius all in an increasing amount. How much longer can such increases in displacements continue within the bounds of reason and to military advantage? If there be any limit to displacement, what is it? These are the questions that must be investigated. A recital of the practice of a few of the other great naval powers prior to the outbreak of the war, the real truth in this regard since then being absolutely unknown, will prove of interest in this connection.

Historical.—The first dreadnought or all-big-gun battleship to be completed for the navies of the world was laid down by Great Britain in 1906 with a designed displacement of 17,900 tons. Her actual displacement when built was found to be 18,600 tons. This vessel carried ten 12″-45 guns, all, however, not being on the center line, so that she and all English battleships up to and including the three *St. Vincent's* have but eight 12″-45 guns on a broadside.

Great Britain reached her maximum battleship displacement in her five *Queen Elizabeth's* at 27,500 tons, which are the equal in size, the superior in speed, the inferior in protection and gun power of the *Nevada's*. The speed of these vessels was 25 knots as designed, and they are stated to have made 28 knots on their trials.

Germany reached 29,000 tons in her vessels laid down in 1914, the last of which there is exact information. These have an armament of eight 15″-45 guns, as has the *Queen Elizabeth*, and comprise three *Ersatz Worth's*. The preceding German class, the four *Kronprinz's*, with displacement of 26,575 tons, were armed with ten 12″-50 guns, and had a speed of 22 knots.

France has gone to 29,500 tons displacement for her four *Tourville's* that are to have the large number of sixteen 13.4" guns mounted in four quadruple turrets.

Japan's superdreadnoughts, the four *Fuso's*, with a displacement of only 30,000 tons are to carry twelve 14"-45 guns, and are to steam at 22 knots. With a displacement much less than that of the *Pennsylvania* these vessels have a heavier armament and higher speed, and as a result must have less armor, steaming radius, ammunition supply and underwater protection.

Italy in her latest constructions, the four *Morosini's*, has chosen a displacement of 28,000 tons with an armament of but eight 15" guns in order to obtain a speed of 25 knots. The reasons leading her to build this type must have been similar to those that led Great Britain to build the *Queen Elizabeth's*, or, else if no reasons exist, it is a case of copying, a procedure that is undoubtedly to blame for many rash designs in warships. Eight guns appear too few for a battleship.

There is no *reliable* information available relative to the new construction in Great Britain, Germany and France that has been started since the beginning of the war. The naval periodicals of Great Britain state that that country is building battle cruisers of 42,000 tons, but of 52,000 tons actually, according to verbal statements of officers in a position to know. These cruisers mount eight 17" guns and steam at 29 knots. Germany is said to have 17.5" guns mounted afloat on vessels actually in commission. These Munchausen like statements are quoted from hearsay and therefore too much weight must not be assigned them. *Battleships*, however, are being continued at from 25,000 to 27,000 tons in displacement.

The first all-big-gun battleships of this country were commenced with the laying down of the two *Michigan's* in 1906. They were designed before the *Dreadnought* of Great Britain and are therefore the pioneer all-big-gun ships.[1] Their displace-

[1] As a diversion at this point it is to be noted that the all-big-gun ship idea was by no means a new one at this time. A reading of the report of the "Board of Captains" convened in 1845 to consider means for the simplification of naval ordnance shows that they recommended the adoption of a uniform caliber throughout the fleet as the ideal to be striven for and proposed that but two calibers, the 32-pounder and the 8-inch shell gun be used afloat.

ment was 16,000 tons as designed, though of course the actual full-load displacement was much greater, being 17,617 tons. As such a condition is true of all vessels the normal displacement as designed will be used in referring to displacements.

The tonnage of our battleships then increased by large increments until the present time when we have in service the largest battleship in the navies of the world, the *Pennsylvania*, with 31,400 tons displacement, a speed of 21 knots, and a maximum belt armor protection of 14 inches. The *California* class of three vessels are to be of 32,000 tons with several changes designed to be improvements in gun mounts, ammunition supply and protection.

The marked increases in size are two; from the *Michigan's* to the *Delaware's*, and from the *Delaware's* to the *Arkansas's*; construction then proceeding by much smaller displacement increments.

The late Rear Admiral Mahan expressed as his opinion that, considering the necessary limit of expenditures and the requirements of a navy with wide naval responsibility, we should not materially increase the size of the ships then (April, 1904) being designed. The vessels were those of the *New Hampshire* class, the principal characteristics of which were four heavy, high-powered guns, eight smaller main battery guns, 12 intermediate guns of a caliber now abandoned having been unwisely chosen, the seven inch, and a large number, 18, three-inch rapid-fire guns, of value only against destroyer attacks and which now are not as heavy as guns carried by the destroyers themselves. This type of battleship is now classed as of the second line. Its cost was $7,129,903.05, its displacement 17,600 tons, with a speed of but 18.16 knots. The battleship speed at the present date has been standardized in practically all navies at 21 knots which therefore should be the speed of our battleships, and this fact more than any other places this type of battleship in the second line.

Chief Constructor Bertin, of the French Navy, about November, 1915, decided that there was a limit in the displacement of war vessels beyond which it was an unwarranted *waste* to go. The higher limit of advantageous displacement he considered as 30,000 tons. With this view the English Admiralty are apparently

in agreement for the latest battleships, those of the *Royal Sovereign* and *Repulse* classes, show a decrease in displacement of 3000 tons, together with a decrease in speed of three knots. What is the reason for this change of policy? The answer, and there must be one, has not been published to the world. Is it because the monster dreadnoughts were weak structurally, and were too large and unwieldly to handle, that repair stations and refuge harbors were too few and costly, that the existing dry docks were too small, that channels of entrance were insufficient in breadth and depth to permit these huge vessels to enter ports in safety, that landing stages, lighters, storehouses, wharves, mooring anchors all were inadequate; or was it that the maximum practical displacement had been exceeded and that the smaller battleships were considered to have the requisite speed, protection and armament necessary to provide the best naval force with reasonable expenditures?

Whatever the reasons may have been for the reduction in size on the part of England, all the other countries that are building big ships have not as yet ceased to add to their tonnage. Our own country at the time of the outbreak of the war was the leader of the world's navies in the size of her battleships, and now vessels of 38,000 tons and larger are under serious consideration.

Definitive.—The small battleship as considered in the statement of the subject of this discussion is a type that cannot strictly be defined, as, naturally, the size depends upon the comparison made with others, a comparison that must change with the years as improvements in guns, armor and designs are brought about.

The "smaller" battleship will here be considered to be the largest that can steam into our major harbors and dockyards, and thus in time of war be not dependent for its existence or upkeep upon *facilities* that do *not now exist*, and that when war comes *will not* have been provided, and that then *cannot* be provided. This permits of a battleship a little larger than the *Delaware* which is of 20,000 tons, that is one of approximately 23,500 tons in displacement. Are not the number of these that can be built by the expenditure of a given amount better for the protection of our country than the lesser number of superdreadnoughts of the *Arkansas* or *Pennsylvania* type that can be built for the same

sum? The principal characteristics of a few of our large vessels are here noted for reference (Table I).

TABLE I

	Displ't (nor'l) tons	Length over all	Beam	Draft	Speed knots	Guns*
		ft. in.	*ft. in.*	*ft. in.*		
Delaware.....	20,000	518 9	85 2.5	26 11	21.6	10 12"-45
Arkansas.....	26,000	562 0	93 2.5	28 6	21.0	12 12"-50
Nevada.....	27,500	583 0	95 2.5	28 6	21.2	10 14"-45
Pennsylvania..	31,400	608 0	97 0.5	28 10	21.3	12 14"-45

* The intermediate batteries are composed of approximately twenty 5"-50 guns.

In this article, for the purposes of comparison, the *Delaware* will be taken for the smaller battleship type and the superdreadnoughts of the *Pennsylvania* type as the larger battleship type. The majority of our harbors and dry docks without dredging or alterations will accommodate the *Delaware* and vessels larger by about 3500 tons, so that such types are the maximum vessels that can freely use our ports.

The actual cost of the *Delaware* was $8,069,500.18, that of the *Arkansas* was $9,940,309.28, that of the *New York* was $11,219,390.74 and that of the *Pennsylvania*, while unascertainable at the present time, will be close to $13,500,000. On the basis of cost it will thus be possible to build for the same amount 16 *Delaware's* to 10 *Pennsylvania's*.

The various uses and possibilities in naval warfare of the two types of vessels selected will be discussed and evaluated under the requirements of strategy, tactics and habor limitations.

Strategical.—Large displacements give corresponding increases in steaming radius, provision and ammunition capacities which enable the vessel to be self-supporting for long periods of time and decrease the fleet commander's anxiety as to the logistic part of his campaign, thus giving him a freer mind for the consideration of the real problems of the war. The vessels can thus operate at longer distances from their bases or select as bases distant ports when logical or strategical considerations demand. Steaming radius enables the fleet possessing the greater to choose its own time to attack or effect a landing, waiting until its adversary has exhausted its fuel or provision radius. The larger battleship has the advantage here, but not to the extent that would be sup-

posed. The *Delaware's* are the equals in cruising radius of the *Arkansas's* and probably of the *Pennsylvania's*. Oil being substituted for coal as the fuel in the new construction will lessen the difference materially. Cruising with the fleet has given ample practical demonstration that the *Delaware* is of as great steaming radius, provision and ammunition supply for all practical purposes as are the larger vessels. The larger amount of empty spaces found on the *Arkansas* than on the *Delaware* explains in a measure this seemingly illogical condition, and point out that the expression "waste of displacement" may not be a misnomer when applied to the displacements of our *Pennsylvania*.

For the conduct of a strategical campaign there can be no doubt but that numbers are of the greatest value. On this basis the 16 battleships are better than the 10. Numbers, whether of battleships or scouts, are necessary to assure the strategical victory, and so here the conclusion is reached that the small battleship in the proportions preceding gives a better defence of our country on a certain expenditure of moneys.

Tactical.—There are many elements that enter into the tactical value of battleships that require investigation at greater length than do the strategical points, and they are here considered in the inverse order of importance with the view of leading to the naval battle and to obtain the correct decision as to the proper values of the elements in warship design. In tactics must be treated speed, protection, guns and the tactics of the fleet in battle, the last depending upon the first three.

Speed.—This factor is deemed to be one of the most important tactical qualities for battleships, but increase of speed entails large additions in displacement that are out of all reasonable proportion to the results when it is remembered that guns or protection must likewise be reduced. Speed should, theoretically, enable the one possessing the higher to engage the enemy or not as he chooses, and after the battle is on to choose his range and alter it as may be desirable, to take advantage of the prevailing conditions of the wind, sun and the restrictions imposed by the neighborhood of land or shoals. If, however, the slower fleet be the superior in numbers, the disadvantages due to the lack of speed are reduced in a great measure, if not entirely offset, by certain dispositions of the battle line. For the navy of this country the idea of remov-

ing all our present ships from the battle line by the construction of much faster battleships cannot be seriously entertained. Both types of the ships here under discussion have the same speed, a speed that appears to be the standard battleship speed here and abroad, that of 21 knots.

In order to portray the elements necessary to obtain speed in large ships, a curve, Diagram 1, is here drawn from the one pub-

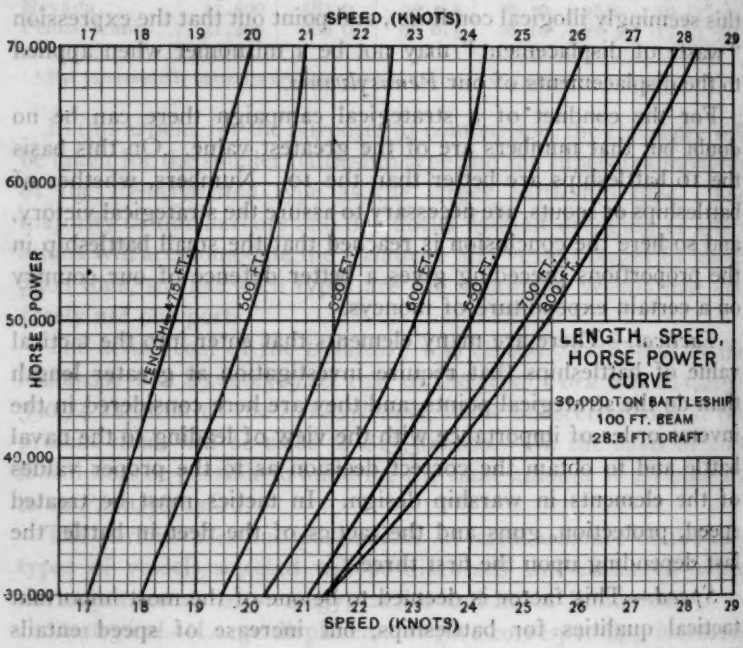


DIAGRAM 1

lished by our chief constructor. It is seen that to drive the vessel given therein 22 knots requires 54,000 horse-power if she be 550 feet long, and but 33,700 horse-power if 700 feet long; so that the longer the vessel the less weight is required for the machinery. The weight of machinery for a given horse-power will be approximately the same in all vessels, but, if more speed is required in the vessel, it is evident that length must be added in an ever-increasing ratio, which nullifies the advantage of the low horse-power and low machinery weight by the increase in the weight of

the hull, which decreases the amount that can be allotted to protection and guns.

Thus, the speed question, as with all other warship design questions, is a matter of compromises between conflicting conditions, and the final result and decision have to be apportioned to the various elements such as longer hulls with their increased weight, thinner armor or a smaller area of the vessel protected while the amount to be protected has steadily increased. In brief, then, increased speed is paid for in the direct weight to provide the machinery for the increased horse-power, the additional weight of hull to give the length and form that enable the vessel to be driven at the higher speed, the consequent reduction of armor thickness or the smaller area of the ship protected, and lastly in the reduction of gun power forced by the less weight that can be allowed the armament.

Offensive power in long vessels is sacrificed in another way, that is, that great length gives a large target for guns and especially for torpedoes, rendering such vessels more liable to be sunk than the smaller vessel and thus ending their usefulness in the battle.

Protection.—The cost of armor measured in terms of tons of displacement is enormous, and so the thickness of armor placed on vessels varies greatly. The latest types of the battleships of England have a belt that has a maximum thickness of 13.5 inches, with turrets, barbettes and conning-towers of the same; those of Italy have 12.6 inches; of Japan, 12 inches; of France, 12.6 inches; and those of Germany have 13.8 inches as their maximum armor protection. The area protected is always but a small portion of the vessel, the distribution of the armor following no standard practice. The figures given may be slightly under the truth as the information is taken from the dimensions as published to the world.

Our latest battleships have a belt armor of 14 inches and turret port plates of 18 inches in thickness, by far the heaviest armor known to have been placed upon vessels. Its distribution is considered to be the best now possible and to be better than that on any foreign war vessel. Their ability to withstand punishment, when, by good fortune, they are struck by shells only upon the heavy armored positions, is unquestioned. Not having high speed such vessels are supposedly rendered liable to attacks from directions and angles unfavorable to them by a force superior to

them in speed. A force composed of fast battle cruisers *may* be able to push home an attack upon such battleships, but this is an *extremely doubtful* proposition, not a single actual case of it ever having taken place.

The underwater protection becomes of increasingly greater importance as the size of the vessel grows. The larger the area exposed as a target, the greater the probability of a torpedo hit. The problem of preventing the modern battleship from sinking when hit below the water-line is still far from solution. Much weight in displacement and much thought in design, with the view to reduce the chance of this catastrophe, had been expended in the construction of the *Audacious*, a superdreadnought of dimensions the same as our *Arkansas*, only to result in her destruction by the explosion of one puny mine. The most successful resistance to underwater attack thus far made public has been exhibited by the *Goeben*, a battle cruiser whose linear dimensions exceed those of the *Pennsylvania*. Near the Bosphorus she was hulled by two mine explosions, one in the forward torpedo room, the other in the steering engine room. The vessel not only remained afloat, but was able to steam at a speed of 15 knots into harbor where she could repair.

If our ships can be made thus immune to torpedo attack by the adoption of large displacements, the disadvantage of the larger and longer hull of the large vessels may in a measure be compensated for. Such appears to be the contrary, however, and the smaller battleship is as well protected against the mine and torpedo, and therefore a larger number of smaller battleships is better than fewer large battleships. A battleship, subject to being sunk on sight by a little mine or torpedo, should not be made unnecessarily large for the work it is required to do.

The gun and the torpedo are still in the ascendancy over armor, and it may thus come to pass that battle cruisers with but little armor and high speeds will be the fighting ships of the near future, and that the present heavy, thick plates of armor, that are all too liable to be jarred from the securing bolts by the impact of heavy shells and fall from the vessel's side into the sea, will find places only in museums among the antiques.

Guns and Gun Power.—The goal desired is to have guns of sufficient power to penetrate or smash in the heaviest protected positions on any projected vessel at the limits of the *probable*

effective fighting range. This range is dependent upon the limits of visibility of the target and the willingness of a naval commander to exhaust his ammunition for the sake of a few hits at long distances.

Visibility varies with the climatic conditions and the height of the eye above the sea level. In the usual early spring weather off our Middle Atlantic States, and in the summer weather off our New England coasts it is extremely seldom that a battleship can be seen over 10,000 yards distant. In many cases, such as the North Sea, similar or more exaggerated hazy conditions prevail as a usual thing. In the battle cruiser action, January, 1915, the weather was of "extreme visibility" such that an opening of the action at 18,000 yards was possible. When the weather is perfectly clear the sea horizon as observed from our turret sights is 5.7 miles or 11,400 yards distant. As, in order to shoot accurately, there is required only some visible point at which to aim such as the spotter's platform of an enemy, the range will be limited only by the height of this platform, namely, from 113 feet in the latest German ships to 108 feet in the English vessels. Thus, a turret gun of the battleships under discussion can be aimed at a range of 5.7 miles plus 12 miles (visibility of sea horizon from spotter's platform) equal to 35,400 yards. The spotter, even though located in his lofty platform, can see the sea horizon and judge of the fall of his shot for a range of 26,000 yards, while the admiral from his conning-tower periscope has a visible horizon of but 17,800 yards. In order that the admiral may intelligently direct the battle he must have the ranges and positions of the enemy vessels constantly plotted, an operation for which the turret range finders must be depended upon, the hull of the enemy being visible to them 15,400 yards. The maximum possible range for the theoretical limit of a sea action is thus 26,000 yards.

Owing to the splendid sights and range finders now in the service it is as easy to hit at ranges from 20,000 or 18,000 yards as from 12,000 to 10,000, if the enthusiastic statement of a prominent gunnery officer in the fleet may be accepted. This roseate view of the accuracy of modern gunfire is based upon the fact that targets are straddled by the splashes of the projectiles. Such straddles do not always indicate hits, as witness the statement of the experiences of the destroyer *Lively* on November 3, 1914.

This vessel was straddled by salvos coming in quick succession from German cruisers and *was never hit.*

With due consideration of the extreme paucity of hits as indicated in all long-range target practices, by the action in the North Sea under ideal conditions due to the maximum possible target being presented at the minimum possible change and rate of change of range, and the battle off the Falklands, one is not encouraged to expend much ammunition at ranges as great as 18,000 yards. Just pause and think a moment as to what *would* have happened to Vice Admiral Sturdee's squadron if an enemy fleet had appeared to fight him the next day. His battle cruisers had practically no ammunition left at sundown of that December 8, 1914. Fortunately for the English absolute "command of the sea" was theirs, and such a small item as no ammunition aboard was of no moment to their battle cruisers. Four hours and twenty minutes of firing from the 12"-45 guns was required to sink the utterly out-matched armored cruisers of the Germans at ranges of from 16,500 to 13,500 yards. One 12"-45 gun of the *Invincible* in this battle fired 156 shots. Not only was there no ammunition left, but practically all the 12" guns were ruined by erosion. Judging by our proving ground experience such a number of rounds, when fired slowly only, would cause by erosion a loss of 270 foot-seconds in muzzle velocity which gives a decrease in range at 15,000 yards of 1885 yards, not to speak of the consequent inaccurate flight of the shells. An estimate of the number of shots fired by the English in this engagement is 750. *This large number of shots resulted in not over 2 per cent of hits. This fact is the best argument against long ranges,* and indicates that final action will be fought at ranges of less than 16,000 yards, as no naval commander would be willing to waste his ammunition at such long ranges save possibly under conditions similar to those under which the English fought off the Falklands.

In the North Sea on January 24, 1915, the extreme range noted as being used was 18,000 yards, at which range single shots were fired to ascertain proper sight-bar settings. *A hit* is claimed at this range, although 15,000 yards appears to have been the extreme range at which any real damage was done. The *Bluecher* was sunk by the effects of gunfire at ranges of less than 10,000 yards.

The conclusion drawn from the foregoing facts is that, barring some great improvement in our ability to hit at long ranges, the present effective battle range lies between 14,000 and 16,000 yards.

At long ranges large danger spaces are required in the trajectories of the guns in order to hit, and the guns must possess sufficient power of armor penetration to do material damage.

The exact elements of large caliber guns other than those in our own service upon which to base ballistic calculations are unascertainable. On the one hand are the extravagant claims of the Krupps based upon guns unconstructed as yet, on the other the more conservative data of the Elswick and Vickers companies. Where high velocities are claimed, the shell is light and the remaining velocity of the gun at long ranges much diminished, and its power of armor penetration much reduced.

In this matter of the construction of large guns there are considerations of practicability that enter and at present seem to make the 14″ gun the largest one in which a high velocity can be obtained with safety. The present accepted principle of metallurgy holds that there is a practical limit to the size of cast and forged steel ingots, that if this size be exceeded the ingot will have unsound areas which no subsequent forging can entirely cure, and that thus the parts of a gun may contain many local weaknesses, such as, for example, blow holes. This weakening of a large gun forging by a large blowhole *happened* quite *recently* in the *forging* for the tube of one of our 12″-50 guns, a forging made under the most severe requirements and under the most rigid of inspections. Modern skill and science should always overcome all such difficulties and assure sound forgings for even 18″ and 20″ guns. It does not appear able to so do in any nation. Foreign experience has thus far indicated that the forgings for the 13.5″ guns are too large for safety; and that the 15″ guns, through this fact, excessive erosion and other weaknesses of which positive information is lacking, are *not* successful. Much talk, idle but widespread, as to the execution accomplished by the 15″-45 guns of the *Queen Elizabeth* at the Dardanelles has given false impressions as to these weapons. The facts appear to be that her mounts were made so that her guns could be elevated to much higher angles than could those of any other battleship then in service. Advantage was taken of the fact to use her guns in a manner similar to mortar fire against the shore positions. Very low charges were used in

order to obtain a large angle of fall. Even with these low velocities her guns were worn out quickly and she soon returned to England to refit.

In order to compare the powers of guns at various ranges Diagram 2 is drawn, the data being calculated by the most exact of the involved exterior ballistic formulas.

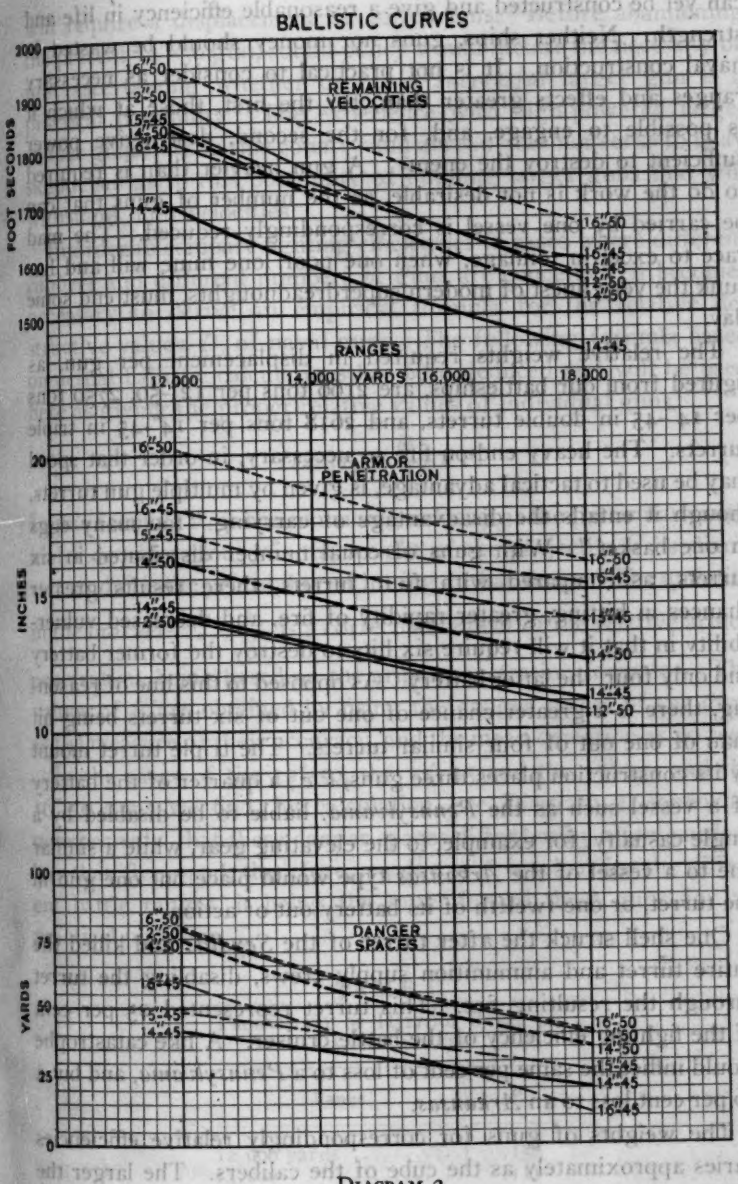
The guns chosen represent: First, those that we actually now have in the service afloat, including the ships of the *Pennsylvania* class; second, one that has been constructed and proved, and that will be placed on the *California* class; third, the foreign 15-inch gun according to the most reliable data accessible to the writer; fourth, a low-powered 16-inch gun *one* of which type has been actually built and tested at our proving ground; and, fifth, a chimerical 16-inch gun of very high power, the successful construction of which may not be a possibility at any time. In tabular form the guns follow:

1. 12″-50, I. V. = 2900 f. s., p = 870 lbs., c = .6, noted by ————
   14″-45, I. V. = 2600 f. s., p = 1400 lbs., c = .7, noted by ————
2. 14″-50, I. V. = 2800 f. s., p = 1400 lbs., c = .7, noted by — — — —
3. 15″-45, I. V. = 2600 f. s., p = 1700 lbs.,[1] c = .6, noted by — — — —
4. 16″-45, I. V. = 2500 f. s., p = 2100 lbs., c = .6, noted by — — —
5. 16″-50, I. V. = 2800 f. s., p = 2100 lbs., c = .6, noted by - - - - -

The danger spaces are seen, rather unexpectedly it is true, to be much the same for all the high velocity, *i. e.*, above 2600 foot-seconds guns. The armor penetration depends upon the remaining velocity and the one-half power of the shell, and the curves indicate the great superiority in this *one* respect of a 16″-50 gun, a gun not possible of construction at the present time, but also point out the fact clearly that our 14″-50 gun is practically the equal of the 15″-45 gun, so that in other words it is the equal of or better than the best gun known to a certainty as existing in foreign navies.

Results abroad, theoretical calculations, experiences in recent sea battles, and cost both in displacement and money indicate convincingly that the 14″-50 gun is the maximum weapon that

[1] The English naval 15″ gun is understood to differ considerably from this; its velocity being 2500 f. s., and its shell weighing 1920 lbs., giving a larger bursting effect but a smaller danger space.


BALLISTIC CURVES
REMAINING VELOCITIES
FOOT SECONDS
2000
1900
1800
1700
1600
1500
6"-50
12"-50
15"-45
14"-50
16"-45
14"-45
16"-50
16"-45
15"-45
12"-50
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RANGES
12,000
14,000 YARDS 16,000
18,000
ARMOR PENETRATION
INCHES
20
15
10
6"-50
16"-45
15"-45
14"-50
14"-45
12"-50
16"-50
16"-45
15"-45
14"-50
14"-45
12"-50
DANGER SPACES
YARDS
100
75
50
25
0
6"-50
12"-50
14"-50
16"-45
15"-45
14"-45
16"-50
12"-50
14"-50
15"-45
14"-45
16"-45

DIAGRAM 2

can yet be constructed and give a reasonable efficiency in life and strength. Neither ships, guns nor money should be wasted in naval construction. It is not practical to consider as necessary ranges and effects greater than, for the first, those at which it is possible to engage, and, for the second, destructive power sufficient to destroy the enemy. A gun heavier than is required to do the work is not desirable, as the number of guns that can be carried by one vessel is correspondingly reduced. The mad race to excel in tonnage, when one poor lone mine will and has sunk the very finest of modern superdreadnoughts, must end some day.

The relative weights required in displacement per gun, as figured from our battleships, are 2166 tons per 12″-50, 2750 tons per 14″-45 in double turrets, and 2618 tons per 14″-45 in triple turrets. The heavy end-on fire so necessary, in order that speed may be used to tactical advantage, is given by multiple gun turrets, though it entails the disadvantage of carrying "too many eggs in one basket." With guns of equal number distributed in six turrets, as compared with four turrets, there results greater chances in hitting, greater rapidity of fire, and decreased vulnerability in that it will require six hits to destroy the former battery and only four, the latter battery. As opposed to this line of reasoning, there is a greater chance of one out of six turrets being hit than of one out of four similar turrets. The triple turret mount by its construction places three guns, *i. e.*, a quarter of the battery of a vessel such as the *Pennsylvania*, liable to be disabled by a single casualty, for example, to the elevating gear, while a similar one to a vessel of the *Arkansas* type would place but one gun in the turret, or one-twelfth of its battery out of action.

One shell struck the after turret of the *Seydlitz* and killed the entire turret and ammunition supply crews, disabling the turret through the resulting fire. This turret represented 25 per cent of the fighting efficiency of the battle cruiser. A like catastrophe would inflict the same per cent of loss to a *Pennsylvania*, and but a 16 per cent loss to an *Arkansas*.

The weights of guns for correspondingly relative efficiencies varies approximately as the cube of the calibers. The larger the caliber, however, the greater weight proportionately is required for ammunition supply. To mount ten 16″-45 guns upon a vessel

will require a displacement of 40,700 tons. Before abandoning the present 14″-50 gun, sound policy would dictate the necessity of first ascertaining whether or not a *successful* larger gun is a practical possibility. The experience with high-powered large-caliber guns both in this country and abroad does not serve to allay skepticism as to this possibility of building larger guns that will withstand high velocities.

In order to compare fighting efficiencies in cases where different *calibers* and different numbers of guns are concerned, it becomes necessary to derive an empirical formula for the relative destructive values, D, of naval guns. The following formula based on actual ballistic calculations has been deduced and will be used here as giving the proper relative values of individual guns:

$$D=\left[v_\omega\times\frac{p^{\frac{1}{2}}}{d}\right]\times P.$$

In this formula v_ω is the remaining velocity at the particular range under consideration, p is the weight of the projectile, d its diameter, and P is the probability of hitting at that range. The quantity in the brackets $v_\omega\times\frac{p^{\frac{1}{2}}}{d}$ is a correct statement of the relative armor penetration, being based on the armor penetration formulas. The values of P are obtained by using the danger spaces of the guns as the measure of their accuracy, and the mean deviation as 20 feet.

In the cases of the 12″-50, the 14″-45 and the 15″-45, and the 16″-50 guns we find, by calculation, see Diagram 2, somewhat unexpectedly, that these danger spaces differ but by a few yards—less than five—and, therefore, a value of P is taken for the different battle ranges, it being the same for all these guns for all practical purposes.

TABLE II

PROBABILITY OF HITTING BASED ON DANGER SPACES

Range	P
12,000 yards.....	.158
14,000 "	.111
16,000 "	.099
18,000 "	.079

For the armor penetration the following table is computed:

TABLE III

RELATIVE ARMOR PENETRATION

12″–50 as unity

Range	12″–50	14″–50	16″–50
12,000 yards	1.00	1.06	1.20
14,000 "	.93	.99	1.13
16,000 "	.87	.93	1.06
18,000 "	.82	.88	1.02

The final relative destructive value is given in Table IV.

TABLE IV

RELATIVE DESTRUCTIVE VALUES

12″–50=1

Range	*P*	12″–50	14″–50	16″–50
12,000 yards	.158	.158	.167	.189
14,000 "	.111	.103	.109	.125
16,000 "	.099	.086	.093	.105
18,000 "	.079	.066	.070	.081

These tables will permit the drawing of comparisons as to the values of vessels in gunfire, and hence the values of squadrons in various tactical dispositions.

The Battle.—One naval writer whose work is quoted by our war college states that the initial preponderance of one party over the other will be conditioned; first, the number of vessels opposed to each of the enemy identical vessels, this varying as the square of the numbers; second, by the number of guns brought into play; and third, in case of an equal number of guns on each side, by the number of vessels that carry them.

In a sea fight the object is, at all ranges and in a given time, to strike blows greater than those received. Each blow must be effective, but not unnecessarily powerful, since the use of a gun heavier than is necessary means a reduction in the number of guns carried, and in the number of blows struck in the given time.

The arguments most often repeated as against numbers of battleships in the battle line are: first, that a long fleet is unwieldly in maneuvering, taking a longer time and greater space to make tactical dispositions; second, that the long fleet has less concentration of fire per mile; and, third, that some of the vessels of the long fleet will be fighting at such long ranges in comparison to the ranges of the ships of the short fleet that their fire effect will be reduced in effect in a large degree.

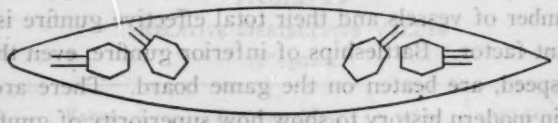
Several diagrams are here drawn to scale, and the study of them indicates that these considerations when the battle is fought at the probable ranges, both fleets having equal speeds, hardly merit the importance that has been attached to them. The diagrams, as well as the tactical game board, show that the longer fleet is not greatly handicapped by reason of its greater length. The number of vessels and their total effective gunfire is the all-important factor. Battleships of inferior gunfire, even though of higher speed, are beaten on the game board. There are no examples in modern history to show how superiority of gunfire, even though distributed in many ships, can be matched by the application of speed and of skill in maneuvering.

A naval battle differs greatly from a land engagement, and the importance of all material being intact is greater proportionately at sea than on land. The destruction of the communications of fire and ship control with the consequent demoralization of personnel and the resulting helplessness of the commander to execute his will, damage to a turret, or, the loss of an entire vessel of a squadron, are every one casualties that are more serious relatively than the loss of many regiments ashore. The number of vessels that compose a naval force, thus, is again seen to be of greater relative importance than is the power and size of each one.

On the basis of cost a nation can build 16 battleships of from 20,000 to 23,500 tons to 10 battleships of about 31,000 tons of displacement. The smaller type, or *S*, battleships can carry ten 12″-50 or from eight to nine 14″-50 guns, while the larger type, or *L*, battleships mount twelve 14″-50 guns. On these suppositions relative fighting efficiencies may be based and the comparisons made by the use of Table IV.

The small type ship may well carry her armament as shown on Diagram 3, where the battery is so arranged that a proportionately large part is capable of end-on fire, an essential for battleships in order to enable them without disadvantage to utilize their speed in choosing and altering fighting ranges. The *S* battleships are considered to possess the same cruising radius and speed as the *L* battleships.

In the determination of gunfire effect the rules laid down by the War College may well be taken in lieu of actual instances as such are lacking. Briefly these are that a battleship fires one salvo per minute, that when a vessel is a target for more than one vessel its effective fire is reduced one-third, and that when a vessel is not under fire its own fire has a value one-third greater than usual.



BATTLESHIP.
22,000-23,500 TONS. 9 14"-50's.
SPEED—20.5 KNOTS.

DIAGRAM 3

This last is because of the lack of interference due to hits and splashes there results a higher state of efficiency in her fire control party.

As it may be contended by many as militating against the force of any conclusions that may be derived from calculations based upon such rules that are empirical, a comparison will also be drawn denying that any advantage can accrue to the smaller battleships because of their volume of gunfire and their concentration upon the larger battleships.

Three cases of long range action between two squadrons, one of 10 *L* battleships and the other of 16 *S* battleships, are sketched and their destructive effects calculated in order to show that the smaller battleships are not greatly handicapped by reason of the length of the fleet, and that, because of their concentration and volume of fire, they are not outclassed by the shorter fleet of larger battleships.

Each case will be considered under three sub-divisions, the *L's* having a battery always of twelve 14″-50 guns:

a. The *S's* armed with ten 12″-50 guns.

b. The *S's* armed with nine 14″-50 guns; the War College rules of counting gunfire maintaining in both *a* and *b*.

c. The *S's* carrying nine 14″-50 guns, the above rules being neglected, the gunfire of all ships having full effect.

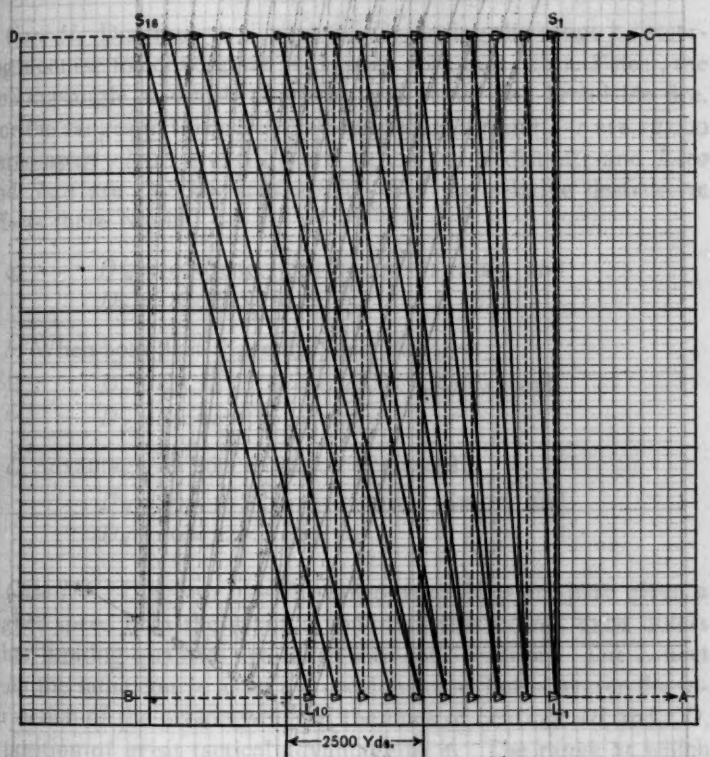


DIAGRAM 4

These suppositions favor the *L's* a little for the reason that these vessels could not carry such heavy guns being the equal in speed and protection to the *S's*, unless the *S* fleet contain nearer 17 than 16 ships upon an equal expenditure of funds.

Case I. Diagram 4.—The two fleets are 12,000 yards apart and steaming abreast each other on parallel courses. The ranges of *S-1* to *S-10* upon *L-1* to *L-10* are 12,000 yards, and from *S-16*

upon *L-10* the range is 12,250 yards, or an increase insufficient to either affect accuracy or destructive effect of gunfire. In such a battle six *L's* are each receiving the fire from two *S's*, and four *S's* not themselves under fire are firing at four *L's*.

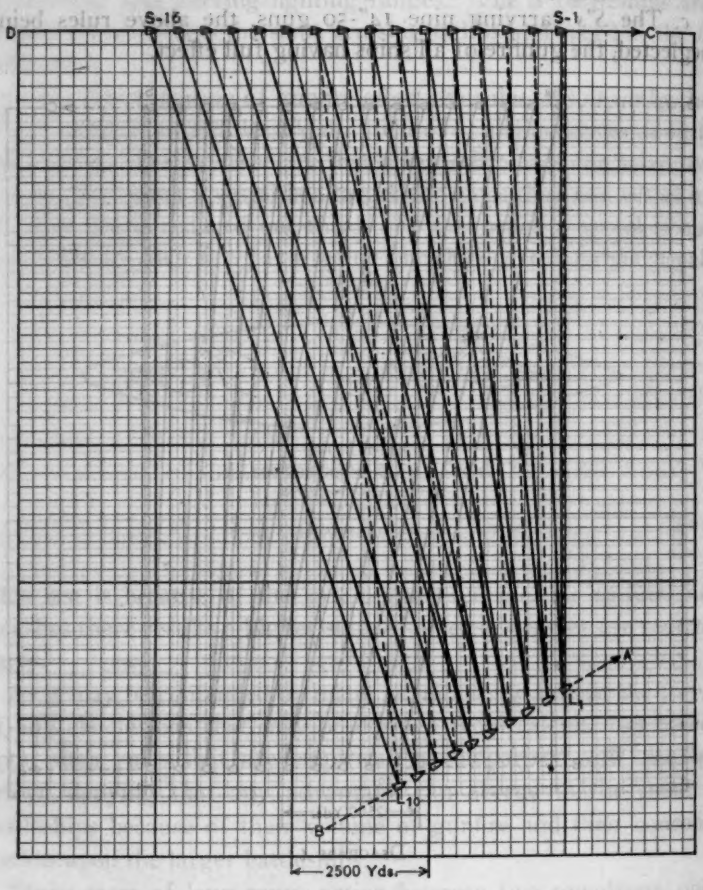


DIAGRAM 5

a. The fire of the *S* fleet is equal to that of $10\times S+\frac{4}{5}\times 6S$ or $18S$; that of the *L* fleet is equal to $\frac{4}{5}\times 6L+$ or $8L$. The comparative destructive effects then are:

$$D_S=18\times 10\times .158=28, \text{ and}$$
$$D_L=8\times 12\times .167=16.$$

b. When both fleets have the same gun;

$$D_S = 18 \times 9 \times .167 = 27, \text{ and}$$
$$D_L = 8 \times 12 \times .167 = 16.$$

c. Advantage of concentration neglected;

$$D_S = 16 \times 9 \times .167 = 24,$$
$$D_L = 10 \times 12 \times .167 = 20.$$

Case II. Diagram 5.—The *L* fleet is closing the range by steering a course to converge at 30 degrees with that of the *S* fleet, the limiting angle at which they may still retain full broadside fire. For the ranges in this case it is found that *L-1* and *S-1* are 12,000 yards apart; *L-10* and *S-10* are 12,375 yards distant; and *L-10* and *S-16* are 13,800 yards apart. For the relative destructive effects there results:

a. $D_S = 10 \times 10 \times .153 + 8 \times 10 \times .13 = 25$, and
$D_L = 8 \times 12 \times .161 = 15.$

b. When both fleets have the same gun;

$D_S = 9 \times 10 \times .161 + 9 \times 8 \times .138 = 24$, and
$D_L = 8 \times 12 \times .161 = 15.$

c. Advantage of concentration neglected;

$D_S = 9 \times 10 \times .161 + 6 \times 9 \times .138 = 22$, and
$D_L = 10 \times 12 \times .161 = 19.$

Case III. Diagram 6.—The large battleships are here given a higher speed than the small, a condition that cannot exist unless other limiting qualities are taken into consideration. The *L* fleet is on the same course as in the previous case, but is nearer the intersection of the prolongation of the lines of bearing *AB* and *CD*, a position of great tactical advantage to it. The range at which the last of the *S's* are firing upon the last of the *L's* is thus greater and reduces the value of numerical superiority in large measure. The ranges are: *S-1* to *L-1*, 12,750 yards; *S-10* to *L-10*, 15,100 yards, the mean in this case being 13,825 yards; and *S-11* and *S-16* to *L-6* to *L-10*, average 15,875 yards. The results of the calculations for the several considerations then are:

a. $D_S = 10 \times 10 \times .11 + 8 \times 10 \times .088 = 18$, and
$D_L = 8 \times 12 \times .115 = 11.$

b. When both fleets have the same gun;

$D_S = 9 \times 10 \times .115 + 8 \times 10 \times .09 = 17$, and

$D_L = 8 \times 12 \times .115 = 11$.

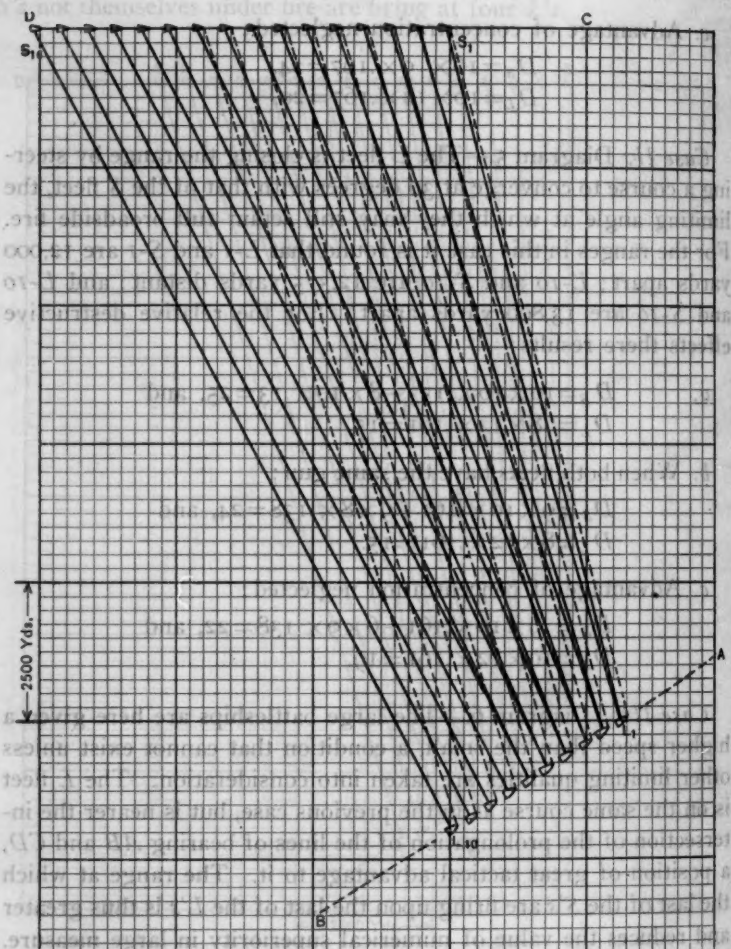


DIAGRAM 6.

c. Advantage due to concentration neglected;

$D_S = 9 \times 10 \times .115 + 6 \times 9 \times .09 = 15$, and

$D_L = 10 \times 12 \times .115 = 14$.

The three cases just cited show somewhat unexpectedly that the gunfire of the fleet of small battleships is greater than that of the fleet composed of the fewer large battleships. The loss of concentration of fire per mile does not affect the range sufficiently to offset the advantage in numbers held by the small fleet.

These values of gunfire effect neglect one very important incident that will quickly destroy the balance at the beginning of the engagement. Should one unit of each fleet be sunk, the resulting relative proportions will increase the advantage of the smaller battleships.

Without penetrating the heaviest armor of a ship, the utter demoralization of its personnel may be caused by various casualties such as, for example, the cutting of its interior communications. The brain is thus shut off from the hands and feet, as it were, and the ship becomes a helpless mass, a menace to the ships of its own fleet, and a negligible quantity so far as its power of dealing damage to the enemy is concerned. The 12″-50 and larger guns alike will disrupt ship systems of communications and penetrate all but the very heaviest armor plates at all battle ranges, the probability of hitting being practically the same with all guns though actually a little the greatest in the case of the 12″-50 gun. Why then place guns of unnecessarily large power upon battleships, at the resulting sacrifice of other military features?

Limitations to Large Displacements.—The strategical and tactical values of battleships having been considered without regard to the existence of any conditions that force practical restrictions upon the value to the navy of vessels of large displacements such factors will now be investigated.

Proper administration of the funds allotted by the government for the navy, the force that in war must secure the defence of the nation's coast and its commerce, and assure the punctual and certain delivery of its food supply and other necessities, requires that with the construction of large battleships provision be made for the dredging of channels and harbors, the building of dry docks of sufficient size, and the equipment of suitable repair stations. Up to the present time such a policy has not been carried out by this country with the result that the fleet, because of its huge superdreadnoughts, will, if war should come, find itself fatally crippled through the lack of harbors and dry docks.

Channels.—The depths and breadths of our channels of access to our harbors, dockyards and supply stations will undoubtedly have an enormous naval value in controlling the fate of the nation on the sea.

Can the present units of our fleet when repairing at even our main dockyards get to sea immediately upon the completion of their refit? Unfortunately, the fact is that they cannot. Only in January, 1915, to quote actual cases of this, the superdreadnoughts of the *Arkansas* class, on account of low tides, were compelled to remain at the New York yard two days after the date set for their departure before there was sufficient water in the channels to permit them egress to the sea. Again in December, 1915, one of these same vessels waited six days off Tompkinsville before there was

TABLE V

Yard	Mean low water in channel in front of yard	Width of channel	Depth to sea Mean low water
Boston	32 to 35 ft.	1200 ft.	32 ft.
Portsmouth	32 to 66 ft.	980 ft.	36 ft.
New York	22 to 30 ft.	360 ft.	26 to 40 ft.
Philadelphia	25 to 35 ft.	1700 ft.	30 ft.
Norfolk	28 to 35 ft.	525 ft.	35 ft.
Mare Island	20 to 31 ft.	900 ft.	28 ft.
Puget Sound	25 to 48 ft.	3940 ft.	42 ft.
Pearl Harbor	35 to 47 ft.	600 to 1600 ft.	35 ft.
Guantanamo	19 to 42 ft.	2050 ft.	29 ft.

sufficient water in the channels to permit her to proceed to the navy yard. Yet, this yard is presumably the most accessible one on the Atlantic coast, and the vessels are ones of a normal displacement of only 26,000 tons.

Table V, taken from data of the Coast and Geodetic Survey, corrected to November, 1915, shows the depths of water available in our principal dockyards.

Strategically, the Panama Canal must enter into all calculations of warship design, and the dimensions of its parts will form an ultimate limit to the size of our battleships if displacements beyond the amount permitted by the dockyard restrictions are to be continued by the navy. The lengths of the locks in this canal are 1000 feet, their width is 110 feet, and they have a depth of 41 feet, all of which indicates that for many years to come, despite increases in displacements, the Canal will be sufficiently large.

A damaged battleship may draw 35 to 40 feet of water, and an anchorage in still water would enable repairs to be made by the caisson method. Such anchorages practically do not exist on our coast.

It is worthy of comment that among all the projects for increases in the navy there appear no specific recommendations for the deepening of channels, of the water at the docks, or of the anchorage spaces at the navy yards. Unlimited time and money are required for this deepening process, as dredging is difficult, unreliable, and its cost, compared to what is accomplished, is enormous.

Table V shows that this country has practically no navy yards with sufficient water to permit them to aid even our present superdreadnoughts in time of trouble. It is often said that as the vessels increase in size proper channels and harbors will be provided. This, however, is not the case, as the vessels of the navy are already far too large for our harbors and docks.

Dry Docks.—Large docks located where a battleship larger than about 23,500 tons can reach and be dry docked are found, as indicated in Table V, at only four widely separated navy yards, viz.: New York, Norfolk, Bremerton and Pearl Harbor.

The average cost of these docks was $2,176,322 each, and the time required to build was seven years.

The channel abreast the Norfolk dock is but 525 feet in width, so that docking a large battleship is hazardous business and a fine, seamanlike bit of work. The *Pennsylvania* has been docked and undocked at this yard by placing her diagonally across the channel and at an angle to the length of the dock. The slightest mishap would result in serious damage to the vessel.

The docks accessible to vessels of about 23,500 tons displacement include, in addition to the four previously mentioned, those at Portsmouth, Boston, Philadelphia and Mare Island, with the probability that the dock at Charleston, S. C., will soon be available. Thus the smaller superdreadnought types have a great advantage over the largest type of battleships.

In time of peace dry docks are required for the overhaul periods and repairs to the units of the fleet. In time of war one dry dock may stem the tide. Circumstances may readily be conceived where a $16,000,000 battleship will be an entire loss, if there be close to the scene of action with its resultant damage or disaster, no dry

dock to which the vessel can proceed for repair and refitting. A fleet of battleships damaged in the initial stage of an action could, if suitable docks were available, rapidly repair, return to the high sea, and then defeat the enemy's similarly damaged fleet which had ventured to make an attack upon the coast.

If dry docks do not exist prior to the outbreak of a war they can hardly be built before its end. They cannot be improvised in short spaces of time. Although for what one large battleship costs, four dry docks may be built, the time required in the construction of a dry dock is one and four-tenths times that of a battleship. In time of peace to build the present huge battleships two years ten and seven-tenths months are required from the time of the awarding the contract until the commission pennant is flown.

Cost.—The cost of battleships is a variable, dependent upon many other variables, and so the only proper comparison is obtained by the consideration of several vessels built at approximately the same time. The following table gives such data:

TABLE VI.

COST OF BATTLESHIPS

a. Small Battleships.

Name	Cost	Average cost
Delaware.....	$ 8,069,500.18	For the four vessels the average is $8,755,348.86. The cost of the *Florida*, built at the New York yard is out of all proportion to the other vessels, costing more than did vessels 7000 tons larger.
North Dakota..	8,519,725.25	
Utah.....	8,189,674.28	
Florida.....	10,242,495.73	

b. LARGE BATTLESHIPS

Name	Cost	Average cost
Arkansas.....	$ 9,940,309.28	The average of these four vessels is $10,500,762.73.
Wyoming.....	9,917,466.84	
New York.....	11,219,390.74	
Texas.....	10,925,884.03	

The *Florida* is therefore neglected and the average of the three small battleships is found to be $8,259,633.24.

It is deduced from the above that from 15 to 16 battleships of 22,000 to 23,500 tons displacement may be built for the same total sum as can 10 battleships of 31,600 tons of displacement.

Maintenance.—The yearly maintenance of battleships varies little, and is close to $800,000. The fleet containing the greater number of units will be the more expensive one to maintain in commission.

The Summing Up.—During the course of the foregoing investigation of the question under discussion, the following facts that should determine the logical answer have been proven:

1. Strategy requires the larger number of vessels.

2. The type of smaller battleships under discussion possess speeds and steaming radii the equal of the largest type of battleship.

3. The larger battleships are practically as vulnerable as are the smaller.

4. A sufficient number of guns of the necessary power and of the greatest obtainable accuracy can be mounted upon the smaller vessels to enable them to defeat, at all practical fighting ranges, a smaller number of larger vessels despite the heavier caliber guns of the latter.

5. In battle, the number of vessels is most important because, by their concentration and volume of fire, the greater number have an important advantage over the smaller number.

6. By continuing the construction of battleships not over 23,500 tons of displacement, the present units of the battle fleet will be utilized to the utmost.

7. The waste of displacement and consequently of funds that takes place in the construction of battleships increases with their size and is much greater proportionately than is any advantage gained thereby.

8. The smaller ship by reason of its size has many more ports and dry docks available to it for repair and revictualling than has the larger ship. This attribute may most conceivably win a naval campaign that would be lost by the inability of the larger vessel to return quickly to the battle line after its retirement therefrom because of severe damage.

9. Our docks, harbors and repair facilities can with justice be expected to be maintained so as to provide for the necessities of the smaller ships, whereas, to improve them sufficiently to make

them suitable for the largest types of battleships is a problem that is extremely costly and improbable of solution.

10. Limited to a certain displacement the tactical and strategical qualities of the smaller battleships will be vastly improved by the ability of the naval officers charged with their design.

The Answer.—For the expenditure of a given amount, the construction of smaller battleships provides better for the defence of our coast, and incidentally aggressive action, than does the construction of a less number of the largest type of battleship.

Epilogue.—The conditions under which the sea battles of the present day will be fought demand the greatest possible accuracy and volume of gunfire, together with sufficient destructive effect from vessels engaging at ranges of from 14,000 to 18,000 yards. These are conditions that greatly subordinate the morale of the personnel to the material physical strength and endurance and numbers of the ships composing the forces engaged. And thus it is coming to pass that

> ". . . . in all time of our distress
> As in our triumph too,
> The game is more than the player of the game,
> And the ship is more than the crew."
>
> —KIPLING.

SECRETARY'S NOTE.—The foregoing essay was selected by the Board of Control, from those submitted in competition for the Lippincott Prize, to present the case of the "Small Battleship." J. W. G.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

MILITARY PRUDENCE

By COMMANDER A. W. HINDS, U. S. Navy

Motto: "What right have I to write on Prudence whereof I have little and that of the negative sort?"

In military matters America has arrived at the parting of the ways. She is now an onlooker in the only *real* war the world has ever had. The other wars have been mere skirmishes. In the days of that great genius of warfare, Napoleon, when 100,000 men were engaged on a side the battles were called great battles. He won his laurels in the first Italian campaign, where at no time did he command more than 45,000 men. In the battles in Europe during the present war the number of combatants on each side is reckoned in millions.

We of America have viewed this great conflict from afar, and we are afraid—not afraid in a cowardly sense—but we are afraid of such keen suffering and such terrible destruction as have come to Belgium, Poland and Serbia.

Being afraid that in some way the dire distress of the warring European countries may be brought home to us, the people all over the country are beginning to think and talk of ways and means to avoid the havoc which is at present the curse of the Old World.

On every hand one hears such questions as: "Who will win the war and how will it affect America?" "Is there any possibility of a practicable, permanent peace?" "How can the United States best prepare itself for possible trouble?" and hundreds of other questions, all bearing on peace or war. The weather as a topic of conversation has taken a back seat. The President of the United States, in the most important message delivered to Congress since the Civil War, gave all his time to a discussion of preparedness

and the national danger due to lack of patriotism in our own citizens.

In studying the probability of a permanent peace, one must take cognizance of human history and human nature. Science is causing rapid changes in the mode of living and improved means of communication tend to prevent misunderstanding. Before long one will be able to telephone from Portland to Peking, but it is pertinent to ask ourselves the question, "Has human nature changed materially?"

There have always been "wars and rumors of wars." Sometimes the Lord even took a hand in the war Himself. He instructed Joshua how to take Jericho, Gideon how to overcome the Midianites, and Samson how to slay a thousand men with the jawbone of an ass. Even the birth of Christ, that greatest event in the world's history, heralded with "peace on earth and good will to men," did not succeed in stopping war.

Since the Christian era began there have been just 451 wars, or an average of a real man-sized war every four and two-tenths years. During the nineteenth century, according to Haydn's Dictionary of Dates, a great battle was fought every year—barring seven!

In connection with the study of the probability of peace or war for the United States, there must be taken into account the natural causes of war for this country. What are they?

1. The Monroe Doctrine.
2. The Open Door.
3. Trade jealousy.
4. Racial jealousy.
5. Disposition of the Philippine Islands.
6. Immigration questions.

Trade jealousy was probably the cause of the present war in Europe; with us—a generation from now—it will no doubt overshadow all other causes. Heretofore our manufacturers have had all they could do to supply our own population. This will not be true 20 years hence. We must reach out for a market. The market for our surplus will not be in Europe or in European-owned Africa. It must be created in South America, Asia and Polynesia. There will, of course, be an intense competition for the above mentioned trade. The United States must have this trade—will we have to fight for it? The question of whether

America must fight for the trade that all know she *must* obtain in order that her manufactories may continue to run is one that must be decided by those who shape American policy. While trade jealousy looms largest amongst probable causes for war, the other five of the six causes mentioned above remain with us, and all must be studied by American statesmen in deciding whether we can safely assume that the country will remain at peace or whether it is good "horse sense" to prepare to meet any possible adversary. In order to be sure of peace, it is certain that the causes of war must be eliminated—for effect has a habit of following cause. In addition, human nature must be changed, and it is the duty of the adherents of pacificism and the supporters of preparedness to decide—and that very soon—whether the causes for war can be adjusted with fairness to all nations and whether human nature has changed sufficiently to insure us that there is no possibility of the United States having to go to war. It takes a long term of years to prepare for a successful war—Germany has been engaged in preparation since the days of Scharnhorst and Queen Louise, and we must not make the mistaken assumption that we can prepare in one or two or five years.

The whole question of American preparedness boils down to two general propositions:

(a) Can a permanent international peace be arranged so the United States can avoid the expense of preparedness, and will the nation feel so secure in the international treaty that it will dare remain unarmed?

(b) If the country at large is afraid of (a), then it must prepare to fight probable enemies or a combination of them, and prepare to "pay the fiddler." Armament is costly—not one one-hundredth as costly as would be a war in which we meet defeat, but far more costly than our present program of preparedness.

The question of whether the country wants preparedness is not one for the naval officer to aid in deciding—his business is to obey orders and do the best he can with the tools furnished him. Ordinarily the naval officer does not even vote, and the voter and taxpayer, through their national representatives, are the ones who provide the sinews of war.

It seems likely, from present indications in Congress and from the trend of public opinion, in so far as it can be read and evaluated, that the United States intends to have a try at preparedness.

If it be so decided, then the talent of the army and navy will be called upon to advise on how to prepare most efficiently and at least cost.

THE MATTER OF PREPAREDNESS

There are some who think America can never prepare efficiently for a war that may be thrust upon her. It is claimed that politics enters too strongly; that the country is too loosely governed; that the various sections are not willing to make the necessary sacrifices for the general good; and that the tenure of office is too short to allow our officials to get more than a grasp of what is needed before they are relieved by a change of administration. Some of the claims savor of truth. If it takes a graduate of the Naval Academy five years to learn how to get the best work from a turret's crew, how can a Congressman of one year's experience know how many torpedoes and mines we should appropriate for? If after 30 or 40 years of service naval officers differ on whether the country should build battleships or battle-cruisers, how can the Senator in his first term be expected to know which to vote for?

We are novices in the business of preparedness, but there is a certain amount of fundamental knowledge upon which we can draw, and certain recognized general principles which can be applied.

(a) Party politics and sectionalism must be absolutely forgotten.

(b) If the country is to be forced into preparedness, it must "go the limit." Half-hearted measures will only open the road to quarrels with our international neighbors.

(c) We must do the thing along business lines.

When our country is forced to really prepare for defence it will undoubtedly be done according to the traditional American "horse sense." The American mind is as keen as any other. Both the army and the navy are examples of "big business," and no one can imagine smoother running machines than the U. S. Steel Corporation or the Pennsylvania Railroad. We have in our country hundreds of men capable of taking charge of preparedness and running it along economical business lines.

The writer has never had the pleasure of reading a paper more "chock-a-block" with common sense than the one written last August by Mr. Martin J. Gillen, president of the Mitchell Wagon

Works of Racine, Wis. It is called "A plan which will organize the nation for defence on broad and comprehensive lines, taking full advantage of the existing factors which have made this country what it is to-day." He proposes to have a general advisory board of experts to "use their creative power and business ability" to help the government. He proposes also that we "in time of peace prepare for war." Mr. Gillen evidently does not believe in waiting till the gale strikes the ship before shortening sail.

The plan is so full of patriotism and efficiency, and would save the government so much money, that Mr. Gillen's permission has been obtained to quote from the paper to show how the "group" from one industry works:

> Take the wagon group; appoint eight representatives; a representative from the International Harvester Corporation; the Studebaker Corporation; the John Deere Wagon Co.; the Mitchell Wagon Company; the Mandt Wagon Company; the Bain Wagon Co.; the Peter Schuttler Co., and the Kentucky Wagon Co. These men shall be known as the Advisory "Wagon Group," and this group shall elect one member from its board who shall become its member of the General Advisory Board above named. No compensation shall be paid to any member of the General Advisory Board or any of the Advisory Groups during times of peace, but their actual disbursements shall be certified to under oath and allowed; in times of war they should be allowed the pay that their army commission carries.
>
> The government shall present to the "Wagon Group" plans and specifications of all forms of wagon conveyances used or required by the government. This group shall then examine these plans and specifications and report to the government within 30 days such changes in the plans and specifications of the present army equipment which cannot be readily manufactured in our wagon factories, either because of the present factory equipment or because of raw material stock. In a word, standardize the different types of army wagons to the factory equipment and raw material available in this country.
>
> Plans and specifications should be immediately corrected and each wagon manufacturer in America should then be provided with the new plans and specifications, and a sample wagon should be built by each wagon manufacturer, and at least four sets of dies should be manufactured by the government for the irons used in the manufacture of these wagons. The samples and the dies should be paid for by the government and should be the property of the government. The sample wagons should be kept at the factories and the dies at one of the factories where they can instantly be used for all the wagon manufacturers of the United States desiring to build. The right shall be in the government to examine the books, records and costs of each manufacturer or supplier of war materials and under oath any person whether officer, agent or employee of the supplier as to any and all transactions, concerning war supplies and pub-

lish such information as the War Department deems wise, in the weekly periodical (as provided hereinafter) as will enable the government to get better prices and deliveries. Thus a stop be put to manufacturers or suppliers getting extraordinary profits from the government while it is helpless and fighting for its very existence. It certainly would be a fine spectacle in this country, during war, to see certain war stocks on the stock market soar sky-high from extraordinary profits while the government might be struggling to sell or place its securities, at a discount even with increased interest rates.

The Wagon Group should investigate and report in writing to the government, (a) the capacity of every wagon factory in this country; (b) the names of the wagon manufacturers who will build samples under government specifications, and (c) the delivery that can be had within 90 days from each of these factories on the samples provided. This education of each of the wagon manufacturers in the plans and specifications that will be used by the government will prevent all confusion, save weeks of time, and will enable this government to get good competitive prices from the industry, and at the same time almost unheard of deliveries. Within 30 days of the placing of an order this government will begin to receive initial deliveries, and within 60 days thereafter it would receive from 50,000 to 60,000 wagons, which should be about the requirements for one million war troops. The War Department should determine its points of mobilization of troops, so that when the initial order is placed no delay will occur in shipping to points of mobilization in the United States.

The government should call for bids on its war needs from each of the group every six months for enough, say of wagons, to supply from one-half to a million of troops. Upon receiving bids the War Department shall immediately make contracts with the wagon manufacturers for the full amount needed; this to be done every six months, and in event of war all that would be necessary would be for the Secretary of War to notify the manufacturers through the public press or otherwise, to start their factories going the next day, on the contracts. In a word, within a very few days after war was declared large supplies would uniformly be coming into the new camps for troops beyond our standing army almost as fast as they could be taken out of government warehouses. The trouble with the Allies to-day in getting supplies in this country and the terrific prices they are paying, with slow deliveries and confusion, is due in a great measure to the fact that the materials ordered are not easily made by the tools and equipment of American manufacturers and from the raw materials stock available, and to the fact that all the manufacturers in the different groups are not able to get the plans and specifications in sufficient time to acquaint themselves with the actual cost to them of manufacturing the goods, prior to making their bid. To my personal knowledge, a number of manufacturers have made 50 per cent over the cost that they had figured, in order to "play safe" on the orders contracted for.

This plan can be worked out within the different groups of manufacturers supplying war materials, and where, as in the supply of shells, firearms and explosives there is in this country to-day a very limited group of manufacturers, the War Department, working with the Central Advisory Board, can devise ways and means to interest manufacturers so that they can produce. There should be a registry of factories which can be adapted and diverted to the manufacture of needed articles and the government should have the right to commandeer those factories in the event that the owners do not produce for the government. The Central Advisory Board, with the War Department, should make close investigation of the materials that go into explosives, and the government should then control under law the raw materials that go into explosives, and should lay plans to get as soon as possible large stores of these raw materials so that they are available at once to the government for manufacturing purposes. After one year of war we find that the Allies have induced one manufacturer after another to make war materials in his factory along lines he never dreamed of.

Papers like the one from which the above quotations are taken show that there are in the United States men capable of grasping the situation and of handling it with the greatest efficiency and at the least cost. To insure any degree of success, however, in our preparedness business, the national mind must be made up about what sized army and what sized navy are needed, and then the nation must trust such a man or such a group of men to carry out the details. More permanency is needed. Our army and navy officers in the top grade remain in that grade only a short while. It must take the heads of the Army and Navy Departments nearly two years to become reasonably familiar with their business, and by that time they are almost ready to "call their reliefs." It may not agree exactly with our ideals of democracy and representative government, but if the government has to go into preparedness as a business it surely wants to do it efficiently, and efficiency demands that when we get a good head for the War or Navy Departments we should hold on to him for dear life.

OUR SINS OF OMISSION

Navy needs have been set forth many times. They will probably have to be set forth a thousand times and more before the fleet is well equipped and well manned and ready to sail forth on the proper course to the successful issue the nation expects. On account of our peculiar form of government, it becomes a matter of education to obtain the legislation on which the navy is dependent. The questions must somehow or other clarify themselves

in the mind of the Congressman, and to best reach him it would probably be best to build from the bottom up and begin by educating the voter.

In Germany, which has a most efficient organization for war, the government has power to act when it sees a need. In America the active agents are the voters, and it is probable that a country-wide education as to navy needs will be found absolutely necessary before we arrive at the proper stage of preparedness.

SIN NO. I. LACK OF A NATIONAL COUNCIL OF DEFENCE

The necessity for some such body has been preached for years. The reason for its need is that naval strategy must be governed by national policy. It will take a certain force based on certain ports to defend the Monroe Doctrine, and another kind of force based on other ports to exert the influence we *cannot avoid* exerting in the Pacific. The council lays down the policies we must uphold, and gradually the rest of the world acknowledges these policies, and the chances are ten to one that by having the policies well understood we shall save ourselves the trouble and expense of having to fight for them.

The council should have at its head the President of the United States, and have as members men in whom the country has confidence. Some degree of permanency in membership would be a great aid to efficiency and economy. When such a body has decided on its policies, it will not be a difficult matter for the army and navy general staffs to advise the council what is needed in the way of men and armament to enforce the policies laid down. During the past few years it has seemed easy for Congress to turn down the recommendations of the navy general board and of the Secretary of the Navy. It would be a far graver matter to fail to carry out the recommendations of the Council of Defence headed by the President of the United States. As far as the policies of the nation are concerned, if there be fear that we should become removed from the principles of representative government, then the policies might be put to a national vote or put to a Congressional vote. In any case, to beget a successful, well-rounded navy, on which the country is beginning to rely, the national policies must be laid down before we lay the keels of our ships. The latter is utterly dependent on the former. It is impossible to plan with any degree of common sense unless it is known what

we are to plan for, and it is not possible that this nation will go on year after year with such a hit or miss system as we now have.

After all, what is the objection to stating our policies? Ours is a grown-up nation—we are "free, white and twenty-one." Whether we wish it or not, we cannot avoid our national responsibilities. American trade will eventually see to it that American interests in the Pacific are at least equal to the interests of any other nation, and the longer we put off stating our platform on these and kindred subjects, the greater the shock will be to our neighbors. A firm attitude is a great breeder of respect.

SIN NO. 2. LACK OF A NAVY GENERAL STAFF

A navy general staff has also been recommended by many naval officers who have been close students of history. The National Council of Defence lays down the national policies, calls on the general staff for technical knowledge as to navy needs in order to enforce the policies and makes recommendations to Congress concerning the naval legislation. The whole plan is so sensible that Congress, which, after all, is patriotic, could not fail to carry out the recommendations of the council.

For several years the general board has done some of the duty that should belong to a general staff. For instance, it has recommended a certain building program each year. Sometimes the Secretary of the Navy has made the cut in the number of ships recommended by the general board; sometimes the naval committee has made the cut, and sometimes Congress itself has done the pruning. In broad terms, the duty of the general staff is to prepare the navy for war and keep it prepared, and to make plans for the conduct of operations. The function of the war college is to educate officers to fit them for duty on the general staff. As a matter of fact, the war college would be under control of the general staff. The general staff, working year after year, would round out the navy and get it well balanced. There would be proper numbers of battleships, battle-cruisers, destroyers, submarines, auxiliaries and other war craft. Every detail would be worked out and filed away, ready to start the great fleet on its war mission. Every eventuality, big and little, would be so well thought out that the thousand and one wheels would be well oiled, ready for turning, and, what is more, they would mesh. In the Spanish

War we lost thousands of lives and millions of money because the details were not worked out ahead of time; in other words, because we had no general staff to do the job. There was lack of foresight, with its resultant confusion, and a total absence of military prudence. Since that time the army has obtained a general staff, but it is still a sin of omission as far as the navy is concerned—one of the *greatest* sins. In 1870 the German general staff had used so much foresight that all that was necessary to do to start the campaign was to look in a certain pigeon-hole, give the signals, and the army, perfectly equipped, was on the move. The same was doubtless true in 1914. The Germans give an example of perfect military prudence. By planning ahead we can save time and money and lives, and more yet—national honor!

SIN NO. 3. LACK OF NAVAL BASES

Eighteen years ago, when the United States was at war with Spain, plans were made to send a squadron to the Spanish coast, partly with the idea of forcing Admiral Camara to give up his cruise to the Philippines, and partly on account of the pressure of the newspapers for the navy to do something to end the war. Fortunately for America, the peace protocol was signed before the squadron set sail. Where we would have based such a squadron the Lord only knows.

In the present day of the submarine and the mine, without great preponderance in war craft over that of the enemy, an attack on his defended coasts would be suicidal. Witness the Ally ships destroyed at the Dardanelles. Along the North Sea the English are blockading the enemy's coast and keeping his warships bottled up, it is true, but it must also be borne in mind that the British harbors are handy by. English ships are far superior numerically to the Germans, and they can run into their own nearby bases, repair, coal and refit, and rejoin the blockade lines. The nearby base gives them the requisite breathing spell.

Nine years ago President Roosevelt sent 16 battleships on a cruise around the world. The United States was at peace with all nations, and yet it was with great difficulty that the fleet was kept in repair and kept supplied with fuel. Foreign nations were all helping instead of fighting us, foreign bottoms were available as coal carriers, and all the ports in the world were available as bases for our fleet.

By and by, when our trade reaches out to the west and south, as it must do unless our manufactories close down, it will of necessity follow that American interests must at least remain on an equality with the interests of other nations in the Pacific Ocean. Temporize as we will, the influence of the fleet must follow the channels of trade. Kipling expresses the main idea in—

> "The liner she's a lady by the paint upon 'er face,
> An' if she meets an accident they call it sore disgrace;
> The Man-o'-War's 'er 'usband an' 'e's always 'andy by—
> But, oh, the little cargo-boats! they've got to load or die."

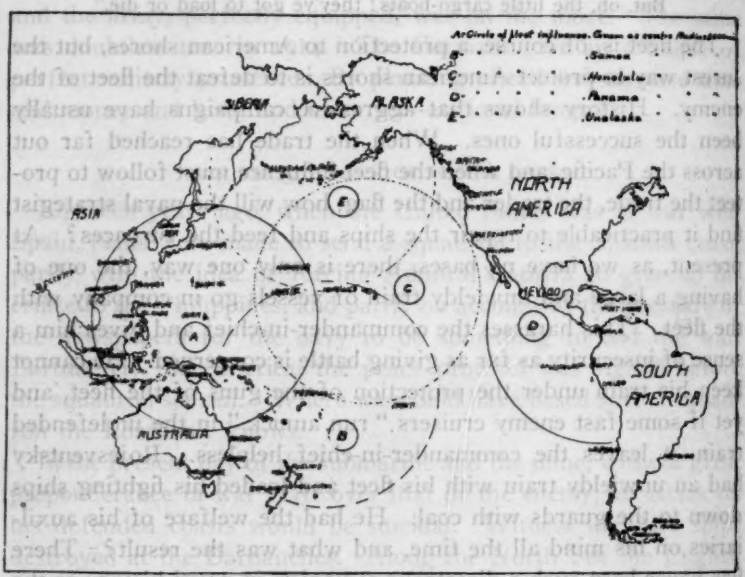
The fleet is, of course, a protection to American shores, but the surest way to protect American shores is to defeat the fleet of the enemy. History shows that aggressive campaigns have usually been the successful ones. When the trade has reached far out across the Pacific, and when the fleet influence must follow to protect the trade, the trader and the flag, how will the naval strategist find it practicable to repair the ships and feed the furnaces? At present, as we have no bases, there is only one way, the one of having a large and unwieldy train of vessels go in company with the fleet. This harasses the commander-in-chief and gives him a sense of insecurity as far as giving battle is concerned. He cannot keep his train under the protection of the guns of the fleet, and yet if some fast enemy cruisers "run amuck" in the undefended train, it leaves the commander-in-chief helpless. Rojesventsky had an unwieldy train with his fleet and loaded his fighting ships down to the guards with coal. He had the welfare of his auxiliaries on his mind all the time, and what was the result? There has never been such a disastrous campaign in naval history as the one that ended in the Straits of Tsu-Shima.

For years the senior officers of the American Navy have told the naval committee that a fleet cannot go too far from its base, but the trouble is that the talks have not been sufficiently convincing. The day of John Paul Jones, when the ship could sail gaily away with six months' supplies aboard, ready to harry the enemy coast, is past. Nowadays the fleet must go into port and repair and take on board provisions and coal and oil—then it can steam out and meet the enemy, but it must have a port somewhere under its lee and within steaming radius.

Bases must be independent of fleet protection and impregnable in their own defensive power. The fleet must not be called away

from its proper duty—destruction of the enemy fleet. And the commander-in-chief, in order to carry no handicap in an aggressive campaign, must know that he has a secure base to fall back on when he needs fuel or when he needs to repair before or after an action with the enemy.

The United States can get no naval bases in Asia, South America, Europe or European-owned Africa. The chances of war, however, put into American hands certain ports in the Pacific that



are ideally situated from a geographical standpoint—the Philippines, Samoa, Guam, Honolulu and Panama. The writer has never had the opportunity to go deeply into logistics, but it can be roughly stated that by careful seamanship and proper scouting our fleet can safely take aboard enough fuel and food to steam 2000 miles away from its base, fight an action and, if successful, return to its base. With this idea in mind, and taking as centers Unalaska, Honolulu, Panama, Samoa and Guam, circles have been drawn, using a 2000 mile radius. These circles may be thought of as the circles of influence of the American fleet. It can be seen from the chart that the circles practically cover the *entire* Pacific Ocean.

No point in the Philippine Islands has been used as the center of one of these circles of influence, for several reasons, any one of which is sufficient in itself. First, it is the expressed American policy of both main political parties that we are to give up the Philippines as soon as the natives are capable of self-government. Second, holding a base there would mean too large an army of defence, making the cost prohibitive. The first reason alone would, of course, make it foolish to spend any large sum of money in preparation of a naval base in the Philippines.

Outside of the Philippines, the two most important bases are Guam and Samoa. By a study of the chart one can readily see how they increase the area of influence of the American fleet. We have owned both Guam and Samoa for a generation, and we have done nothing toward their defence. Each of these places could be made into a strong naval base at the cost of not more than two battleships. Military prudence demands the fortification of Guam and Samoa, and Congress is taking a great responsibility when it knowingly places on the shoulders of the naval commander-in-chief the added weight of not preparing these bases from which he can operate. In any campaign in the Pacific, fortified bases at Guam and Samoa are worth to the commander-in-chief far more than a division of dreadnoughts.

In addition to aiding the navy in its own proper work, one great value of fortifying Guam and Samoa is frequently lost sight of, *i. e.*, the added protection such preparation offers in defence of Honolulu and the west coast of the United States. It does not take a deep study of strategy to learn the importance of protecting the flank. As school boys, in our history lessons we read of the general having to retreat because his flank was threatened—even then we understood the term of "outflanking the enemy" and "taking the enemy on his flank." With the expenditure of a few millions on Guam and Samoa, they can be made so strong that no enemy fleet can afford to attack them. The United States had a short lesson in attacking shore fortifications at Santiago which had, to the best of my memory, only a couple of modern guns of major caliber. We learned from the lesson that the fleet must not be used to attack shore batteries—at least not until the enemy fleet is put out of action.

If, therefore, the United States would securely protect Guam and Samoa and base a few fast cruisers there, no enemy from the

southwest or west could afford to pass by them in order to attack Honolulu, Panama, or the Pacific coast. His transport line, consisting of hundreds of vessels, would be so vulnerable that no intelligent enemy, unless he had great preponderance of fighting ships, would risk the attempt before these bases had been reduced.

There is a further argument for the fortification of Guam, dependent on American policy concerning the Philippine Islands, if we are to retain control of them, or if we intend to prevent other nations from obtaining control, the preparation of a base at Guam greatly strengthens our position in the islands to the westward. From a look at the chart it will be seen that *the whole Philippine Archipelago comes well within the influence of our American fleet based on Guam.*

Naturally an enemy, even from Europe, will attack us in our weak spot, and our weak spot at present is most assuredly the Philippine Islands. Any enemy nation must hesitate a long time before sending a fleet of vulnerable transports to attack these islands when it is known that the United States has nearby a strong naval base from which our fighting ships and submarines may sally forth to destroy his practically undefended transport columns. We need these naval bases badly—worse than can ever be made clear to Congress or to the naval committee; Guam and Samoa we need especially. Without Guam and Samoa our battle fleet will be practically *tied to our own coasts.* Assuming our Congressmen to be patriotic, it is better to tell them this now than to tell them when it is too late. Furthermore, American public opinion in a future war will have something to say as to whether our fleet shall remain tied to the United States coast. Public opinion will most assuredly help to write the order, "Seek and destroy the enemy fleet," and may the Lord help the commander-in-chief who has to protect an unwieldy train while he is trying to carry out the order, unless, through proper foresight, the commander-in-chief has been supplied with a fleet superior to the enemy and consisting of numbers and types well designed for the difficult work in hand. We can prepare the defence of these two islands with a small expenditure of actual money, and each island, being small, can be defended with a force reasonable in number. If we prepare them in time we shall at least be on a fair footing in the Pacific, where we shall have to protect our trade; lack of them might easily be responsible for *national naval disaster.*

SIN NO. 4. LACK OF BATTLE-CRUISERS

The naval advisers to Congress have no doubt brought up this navy need many times, yet we have no battle-cruisers. Other nations have them, built or building, as follows: England, 9; Germany, 7; Russia, 4; Japan, 8. Congress may appropriate for some this session, but the fact remains that other nations have them already and that they can build battle-cruisers as fast as we can build them.

Once again there is no need for a profound insight into naval strategy to see the value of battle-cruisers. They are as fast as destroyers, have a large radius of action, and are heavily armed. They could, therefore, put the enemy's scouts out of action. This means that the commander-in-chief who has a sufficient force of battle-cruisers could gain information from the enemy concerning his force, formation, course and speed. It means further that information could be denied the enemy. It means more yet—that, having destroyed the enemy's screen and found out where he will be at a certain time, there is an excellent chance of taking the enemy at a tactical disadvantage or driving home an attack with submarines and destroyers. It might easily mean that one force could *destroy many capital ships* of the other without even risking his own major fighting units!

By providing battle-cruisers, we are at least assured of a fair fight. The mercy of battle is no more. The *politesse* of "Gentlemen of the guard fire first" is a bygone. Nowadays every advantage is taken of the unpreparedness of the enemy. The countries that will win the wars of the future will be the ones that spend years planning and building against the evil day. In time of war the navy can get all the money it asks for, but battle-cruisers cannot be built in a month or a year.

SIN NO. 5. NATIONAL EXTRAVAGANCE

This is not a sin of omission; it is a sin of commission. We are the most extravagant nation on the face of the earth, and seem to be proud of it. The working girl who is paid $6 a week will spend $2 of it for a pair of silk stockings. The man on a small salary will mortgage his home to buy an automobile, and is not ashamed of it. In defence matters the nation is just as bad. We spend more money than any other country for our navy except

England, and yet we are not second in naval strength. We spend more on the army than most of the others and, compared to European nations, we have no army at all!

It is high time that the army and navy learned to get value received for every dollar appropriated by Congress. Take, for instance, the fortification of Samoa and Guam, what do we need from Congress in actual money? We need guns, cement, blasting powder—the enlisted force can do the rest.

The writer has been shipmates with the job of doing work with very little money. The marines in Guam built military roads, built gun emplacements, mounted guns, and dredged channels; they did it cheerfully under a hot tropical sun; they saw the value of their labor and took pride in doing it. Perhaps they had an idea they were helping to keep the Star Spangled Banner waving a little longer. In any case, their military spirit was not hurt in the least; in fact, there is no doubt but that the actual manual labor they performed on these works of defence made better fighting men of them—it made them part owners, it gave them the pride of accomplishment. This principle can be used in preparing the defence of Samoa and Guam. By using our own men we can save millions for the purchase of those things which do require the actual expenditure of money. The army and navy has a chance to help Congress just as much as Congress can help them, and they can do this by saving every dollar for the government they can possibly save.

The writer does not feel qualified to speak for the army, but why pay out huge sums for a volunteer force? In any war of magnitude we must call on "all hands" for defence anyway. This is merely a matter of history. In the Civil War we were forced to conscription. "We are coming, Father Abraham, three hundred thousand more," was not sung entirely by volunteers—some of the singers were conscripts. England has spent a year begging her able-bodied men to enlist, and tardy enlistment has cost her over 200,000 lives. Why not "take the bull by the horns"? The larger force we oppose to the enemy, the quicker and less costly will be the victory.

Switzerland calls on all her people to learn enough about war to defend the country. Some of the experts of her army she must, of course, employ all the time, and in consequence she must pay them a living wage. Those who serve only a certain length of time each year undoubtedly get very little, for the Swiss Army is

comparatively large and the cost of it is certainly very little. In the end, nations engaged in great wars are driven to compulsory service, so why take money out of the pocket of the citizen to pay back to him for his service as a soldier? Where it means life service, of course, the matter assumes a different aspect.

We are the richest nation on earth, but there is a limit to expense of armament beyond which we dare not go, and it is the plainest duty of the military advisers of the government to learn strict economy.

THE DECISION

On our national journey we have arrived at a crossroads—on the one hand lies international peace with disarmament and its consequent economy; on the other, preparedness with its enormous cost. It is not for those in the military service of the United States to advise as to the safest road to travel. We do know, however, that if we cannot be absolutely sure of a permanent peace we must, and I can think of no stronger way to express it than in Cockney slang, be "bloody well" prepared for war.

To prepare for war as far as the navy is concerned, there are certain things we must do, *i. e.*:

1. Lay down our national policies, for we must build our ships to fit them.

2. Provide for a general staff and accept its recommendations, for it is only such a body that can cover the thousand and one details which have to be covered in order to get ready for war along common-sense lines.

3. Prepare the proper naval bases in the territory of our future spheres of influence, for otherwise we shall have to endure the disgrace of finding our navy tied to our own coast.

4. The enemy has too much sense to wait for us to prepare for war, and it takes three years to build a ship and many more years to build a fleet. It is far cheaper to spend a half billion dollars to build a fleet than to spend ten billions as a war indemnity. Furthermore, by proper preparedness we may save the national honor.

Let us, therefore, build a properly balanced fleet, and begin now!

NOTE.—Written in November, 1915.

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OUR NAVY AND THE WEST INDIAN PIRATES
(CONTINUED)

A DOCUMENTARY HISTORY

By REAR ADMIRAL CASPAR F. GOODRICH, U. S. Navy

The newspapers of 1806, 1807, 1808 and 1809 abound in stories of our losses in shipping and of the ill treatment experienced by our officers and crews at the hands of these brigands. In this connection we cannot fail to recall Lord Nelson's expression, "All privateers are no better than pirates." When held up, American vessels seemed, as a rule, to have been pillaged of all the boarders coveted. Cases were broken into, letters and papers opened, moneys and everything valuable taken at will.

Extract of a letter from the captain of an American vessel at Laguayra,[1] dated July 25, 1807:

Previous to my departure I promised you if I saw anything worthy the notice of your excellent paper to communicate it to you. I therefore sit down in this dreadful place to give the details of injustice and piracies committed on our commerce.

I conceive it a duty I owe to my fellow citizens to give such information as may prevent them from falling into error. A number of small open boats are fitting out here, whether by order of government or for individual enterprize I know not; but that they commit depredations, in the open view of this port, on our unprotected commerce, is certain; several Americans having already experienced the mortification of being brought here, as well as into Cabello[1] (which seems to be the favourite porte, being at a greater distance from the seat of government), under the special pretence of having British goods on board, and, after experiencing every species of insult, they allowed to take their vessels again, and their cargo if not British goods but all of them condemned, and no redress in either case, whether you have them on board or no.

I have an instance now before my eyes of an American ship in the offing, taken by a Spanish privateer (formerly the *Fis Gig* of New York) and is

[1] Venezuela.

about conducting her to Porto Cabello. What ship she is, I cannot tell; but this is her description—a pretty long, low ship, yellow sides, ports apparent, whether painted or real I am not able to judge; no figure head, three top-gallant-yards and royals. Some of the vessels have absolutely been taken in the act of letting go their anchors, and carried away. . . .[2]

From the same to the same, by the ship *Brutus:*

LAGUAYRA, July 28th. Sir, I wrote you on the 25th inst. and requested you to publish the facts stated in that letter; they being of such a nature, and immediately under the eye of this government, that I think they cannot plead ignorance.

A similar affair to the one mentioned happened yesterday. An American schr. being about two leagues to windward, and baffled with small winds (her colours very distinguishable), at 4 p. m. a boat from one of those picaroons departed full of men from this port in quest of her. I particularly watched his motions, and at 20 minutes before 6 I saw him board her, and no doubt he has carried her off, as there is no appearance of her this morning. You may rest assured that anything of this nature shall not pass unnoticed, and that I will give you the facts from time to time and request their publicity, that my countrymen may not go unarmed, and be any longer the dupes of those piratical rascals.[3]

That the southern coast of our own country, also, served as a hiding place for these rascals was only too true:

The bays and inlets of Louisiana were the rendezvous of privateers and pirates claiming to sail under the flags of England, France and Spain. These gentry were continually hovering on our coasts, and in default of finding enemy's ships would seize upon our own, upon one pretext or another, for which outrages our people obtained little redress. New Orleans being at that time an ungarrisoned place, not frequented by foreign ships of war, many of the privateers resorted there for supplies; and, as they spent their money freely, the local authorities rather encouraged their presence. These desperadoes, mixing with the dissolute part of the population, kept the town in a continual state of turmoil.[4]

BOSTON, August 5.—Arrived schooner Osborn, Tubbs, Martinico 26 days. Capt. T. informs, that several American vessels had been recently taken by the French privateers and boats from Guadaloupe and sent into 'Statia and St. Martins, where they were hauled up, dismantled, immediately unloaded, and vessel and cargo sold without any trial or condemnation whatever![5]

The capture by the French of American vessels, merely because, in defiance of the Milan Decree, they touched at a British port,

[2] PG, 24th August, 1807.
[3] PG, August 24, 1807.
[4] PG, August 9, 1809.
[5] CDP, 75.

while an outrage in itself, can hardly be considered as falling within the limits of this study, however closely, in the accompanying pillage and burning, it resembled piracy in all practical essentials.

The policy with which Jefferson's name is indissolubly linked in the naval mind, of trusting to gunboats for defence rather than to properly designed, armed and equipped vessels of war, had the usual disastrous effect on the attempts to suppress piracy. That gunboats were invaluable in narrow and shallow waters is not to be denied. We may, therefore, read with approval that no less than 20 of these craft were reported as at New Orleans on December 1 of the year 1809.

1810-1815

While probably somewhat exaggerated through a righteous indignation, there is no reason to doubt the substantial accuracy of the picture of affairs in West Indian waters which is contained in this contemporaneous letter:

NEW ORLEANS, April 12, 1810.—The capture of the three privateers, the *Duc de Montebello*, the *Intrepide*, and the vessel bearing the papers of the pirogue called *la Petit Chance*,[6] has disclosed a system of iniquity which has heretofore been unparallelled to this country. There appears to be a regularly connected chain of villany which the breaking of this link gives us hopes will be entirely destroyed. We suspect extremely many persons being engaged who now share our hospitality and all the rights of American citizens: we hope, however, for the honor of the American name, that none of our countrymen are engaged. The *Duc de Montebello* was fitted out at Baltimore, purchased by a Captain White, cleared out with French passengers for St. Bartholomews, was called the *Amiable*, put into Savanna (Georgia), armed, shipped part of her crew, sailed, and received the rest from on board a vessel commanded by Captain Kuhn. She assumed off the bar of Charleston the French character & name she now wears; sailed on a cruize, robs, sinks, burns, and destroys every American, Spanish and English vessel she falls in with, until, glutted with plunder, she is compelled to put into this port under pretence of distress; her captain's name is Besson; her apparent owner's name Brouard—one Menton, and a certain John de Loupe, make conspicuous figures on board of her.

The *Intrepide* was built, sailed from this port, about two months since on her first voyage to St. Bartholomews with French passengers, commanded by a captain Rogers, where it is said she was sold by him to Souvinet, one of the passengers, and sailed with rest of the passengers, under the command of Broughman to St. Martins, where she obtained a French commission, pro-

[6] See also CDP, 79; CGC-P.

ceeded on a cruize, and after taking from on board a Spanish vessel 6000 dollars, put in here under pretence of distress. On board the *Duc le Montebello* is found a commission for a vessel to be called "*The French Soldier*," to be commanded by Brougham, who now commands the *Intrepide*.

The schr. which bears the papers of pirogue *la Petit Chance* is commanded by a person by the name of St. Caste, who says he sailed from Guadaloupe in the *Petit Chance*, of between five and six tons burthen, on a cruize; but meeting this vessel, and finding her a very fast sailer, he took his crew on board her, gave the *Petit Chance* to the crew of the schr. and went on a cruize. After making several captures and destroying several vessels, he put into this port in distress. On examining his leak it was found to be a fresh bored auger hole.

The schooner *Blossom* arrived here from St. Jago with a number of passengers, sailed under the command of a certain John Jaque, under American colours, and spoke by the *Montebello* off the bar of the Balize a short time since, bearing a different name, cruizing as a privateer under French colors, and richly laden with plunder, who is no doubt somewhere on our coast engaged in smuggling her cargo into this place. The captain of the *Montebello* supplied her with a boat which he had taken from an American brig; and she proceeded to the westward, where some of our vessels of war have pursued her without effect.

The schr. *Leonora* sailed from this place under Swedish colors for St. Bartholomews with about 80 French passengers on board, and was strictly examined at the Balize by our vessels of war, in order to find arms on board her, but without effect. She proceeded to Breton Island, where it is supposed she took on board her arms and ammunition, as she has since appeared off the Balize in chase of some vessels and has plundered others.

We hear of a schr. called the *Superior*, now cruizing off Jamaica, sinking and burning every vessel she meets; not long since she was at Charleston; also 6 other privateers which sailed from Guadaloupe before it surrendered, and are supposed to be destined for this place: they are now cruizing in the neighborhood of Cuba and Jamaica.

The system of warfare conducted by those men is a disgrace to human nature. Having now no place to send their prizes to, they destroy them on the high seas; and perhaps the prisoners share the fate of their vessels, for we find none on board except a few persons of colour intended no doubt for sale. Nor do they confine their outrage to English and Spanish vessels; we find the *Montebello* has robbed three American vessels, has burnt one, and ransomed another; the protest of captain Schoolfield is in part evidence of this fact.

We hear of a vessel that was purchased at Norfolk, by some Frenchmen, and sailed for Savanna, but stopped at Hampton, where she was equipping in every respect for a privateer; this circumstance, joined to the circumstance of the *Montebello's* having been equipped by a certain Mr. Jerome at Savannah, we are induced to believe New-Orleans and Savannah are intended as the two principal places of rendezvous. When we recollect the bucaniering system which was conducted by Dampier, and others can we have no doubt of an intention in those people to revive it!

95° W.
94°
93°
92°
91°
90°
89°
88°
30°
29° N.
Galveston
(Galveston, St Louis 1st)
Calcasieu
Sabine Pass
Bayou Lafourche
New Orleans
Mississippi River
Barataria
Grand Isle
Grande Terre
Ile Dauphine
(Dauphin Is.)
Ile Chevreuil
(Deer Island)
Chandeleur Is.
Mississippi Sound
Dauphin Is.
Bay St. Louis
Pascagoula
Mobile Bay
Perdido River
(Perdido)
The Balize
GULF OF MEXICO

There exists no authority whatever at this moment for privateering in those seas, and yet those seas are full of vessels which have assumed the character; and when these privateers may have assembled in squadrons, what guarantee have we for their honesty? What security from their depredations on our commerce? Perhaps those very cities which hailed them to our shores as distressed exiled brothers, and benevolently extended to them charity and protection, may be laid under contribution, or perhaps in ashes!

We have felt it as our duty to give this warning, and it rests with the officers of government to elude the danger.[7]

The neighborhood of New Orleans appears to have been a happy hunting ground for pirates masking as privateers, as well as the scene of some share of the just retribution imposed upon them.

In February, 1810, the 11-gun ketch *Vesuvius,* under the command of Lieutenant B. F. Reed, and her boats, under the command of Midshipman F. H. Gregory, captured off the mouth of the Mississippi River the *Duke of Montebello,* of five guns, the schooner just mentioned, and the *Diomede,*[8] a one-gun schooner, manned principally by Frenchmen expelled from Cuba by the Spanish government. The vessels were sent to New Orleans, where they were condemned.[9]

The name of the second prize is open to question, as the following letters indicate:

U. STATES BRIG VIXEN,
BALIZE, March 21, 1810.

Honble Paul Hamilton,[10]

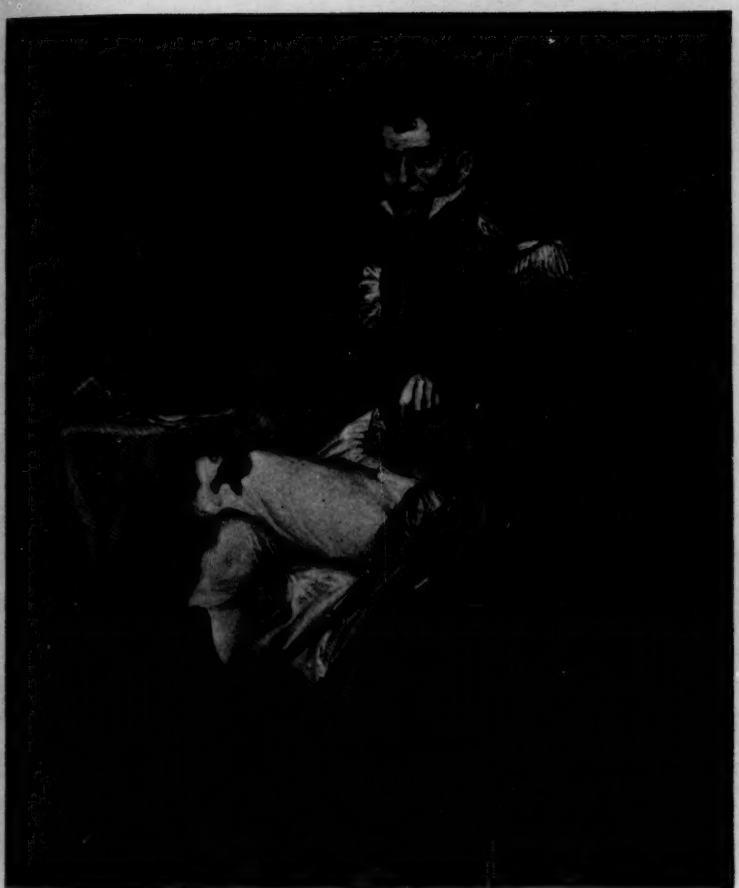
Sir: I have the honor of informing you of my arrival at this place on the 16th Inst. where I found two French Schooners (with about 120 men) that had been detained by the Ketch *Vesuvius.* The French Men very turbulent & dissatisfied at their detention, and showing every disposition to use *force* for their release, inducing me (deeming it for the good of the service) to remain until I could hear from Captn Porter. Yesterday he arrived and handed me a letter which I here send.

COPY

BALIZE, March 20, 1810.

Sir: I feel much gratified that you have remained at this place until my arrival, in consequence of the detention of the two French Corsairs the

[7] PG, May 10, 1810.
[8] *Intrepide ?*
[9] E, 76. Also, CDP, 79.
[10] Secretary of the Navy.



COMMODORE DAVID PORTER

Loaned by Navy Department Library
From original painting by Chappel, in possession of Johnson, Fry & Co., Publishers, New York

Duke de Montebillo & the *Intrepid*, as the presence of your vessel was materially necessary to promote order in our waters. It is my intention to send them either to N. Orleans or to some Atlantic Port, perhaps Norfolk, and the Public service requires that you should remain here until I can proceed to N. Orleans & give you further advice.

I have the honor to be with much respect

Your obt. Servt.

(Signed) D. PORTER.[11]

Lt. Comdt. Charles Ludlow
Comdg. U. S. Brig *Vixen*.

I have the honor to be very respectfully sir

Your obt. hble. Svt.

CHS. LUDLOW.[12]

The *Duke of Montebello* "is loaded with valuable dry goods and specie."[13]

The locality mentioned was recognized as the storm center of those days, since we read that the United States schooner *Vixen* (Bainbridge) and no less than 20 gunboats were there September 1.

During the years 1811 and 1812 the newspapers report in general terms that the French privateers and the British cruisers were still active. So far as the operations of our navy are concerned, they seem to have been confined to the work of our gunboats along our Gulf coast, in August and September of 1811. On August 7, off Pensacola, gunboat *162* took the schooner *la Franchise*, five guns; on August 10, off Mobile, the schooner *Santa Maria*, four guns. On September 7, west of Barataria, she engaged two schooners, *la Sophie*, six guns, and *la Vengeance*, four guns, and a ship, *la Divina Pastora*, of 14 guns. As before, the credit seems to be due to Midshipman F. H. Gregory. The pirates escaped to the mainland after setting fire to the schooners, but Gregory sent the ship to New Orleans.[14]

During 1811, a French privateer captured the valuable ship *Canton*, from New Orleans to Liverpool, off the Florida coast. She was ordered to France, but recaptured off the coast of England by the British ship *Pompee*, and sent into Plymouth. The case is

[11] Porter took command of the station at New Orleans in July, 1807.
[12] O. L., 1810, Vol. 1, No. 72.
[13] PG, April 26, 1810.
[14] E, 76.

typical as illustrating the fate of such of our ships as fell first into one hand and then into another.

"The United States gunboat *152* has captured a French privateer off the Balize."[15] This vessel is not identified in the official documents examined. She was probably the *Divina Pastora*, taken by the gunboat *162*.

On April 9, 1813, the United States schooner *Nonsuch*[16] captured on our "Southern coast" the privateer *Caledonia*, of which the crew consisted principally of blacks. The latter lost nine men in the action, and was sent into Savannah. In the same month the same schooner captured the schooner *Sancho Panza*, which was also sent in and sold.[17] Mork's official report is:

SAVANNAH, 11th April, 1813.

Sir: Having according to your orders finished my cruize, and on my way back on Friday, the 9th inst, at 5 p. m. Savannah lighthouse in sight from the Mast head, I made four sail ahead, two standing for me. When near enough, saw one to be a schooner, the other a sloop. Finding them to be enemies, I engaged them when near enough, the schooner keeping longways to windward, and after firing one broadside into the sloop, she struck her colors. I am happy she proved to be privateer sloop *Caledonia* of Nassau, mounting eight guns and forty men. I arrived safe in with her last evening. The schooner escaped when I took possession of the cutter. She was the *Mayflower*, privateer of two guns and forty men, belonging to Nassau; the other two vessels were a Spanish schooner and a pilot boat. The *Caledonia*, besides her eight guns mounted, has eleven in her hold of different sizes. As soon as I can give up the prisoners, I shall return to Charleston.

I have the honor to remain, most respectfully,

Your very obt. svt.,
JAMES MORK.

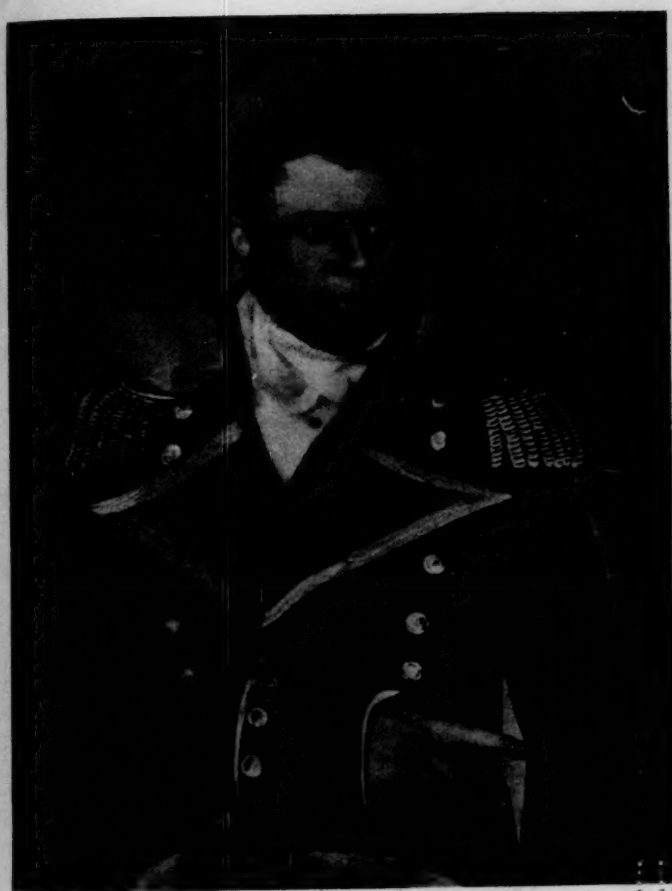
Commodore Dent.

The *Caledonia* has 3 killed, 7 wounded (2 dangerously); 3 missing.

The *Nonsuch* has, Alex. Markinson, O. Seaman, wounded dangerously. William Herringbrook, Seaman, Joseph Sachet, wounded slightly.[18]

The vicinity of New Orleans was a favorite scene of piratical depredations, official cognizance of which was taken by the governor of Louisiana, who, on March 15, 1813, issued a proclama-

[15] PG, April 15, 1811.
[16] Sailing Master James Mork.
[17] E, 70.
[18] C. L., Vol. 2, 1813, No. 184. Enc.



COMMODORE DANIEL T. PATTERSON

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Original received from W. W. H. Davis, Doylestown, Pa.

tion against "a considerable number of banditti composed of individuals of different nations who have armed and equipped several vessels, with the design to cruize at sea, and to commit depredations and piracies against the vessels of nations who are at peace with the United States, in order to carry on with the inhabitants of this state an illicit commerce in provisions and merchandise, etc." He charges all officers of this state to seize and apprehend every individual engaged in these criminal practices, etc.[29]

In 1814, as in the previous year, interest in piracy was confined to the same locality, where Commodore Daniel T. Patterson, U. S. Navy, was in command. Just to the westward of New Orleans the celebrated Lafitte had established a station from which there issued many craft destined to prey upon commerce. Barataria, as the island was called, seems also to have been a port of entry for slavers.

The character and deeds of Jean Lafitte present a curious and perplexing problem which, to this day, has not been satisfactorily solved. It is aside from the purpose of these investigations to enter into so involved a subject. Lafitte stoutly maintained that he had never preyed upon American commerce, that he was a friend of the Americans but a bitter enemy of the Spaniards, against whom, and whom only, he operated.[30] That he and his gang rendered efficient service against the British is of record. Whatever be the rights of the matter, the fact is that Lafitte's establishment being regarded, justly or unjustly, as an annoyance and a menace, a joint expedition was despatched to destroy it. The following is the official report of this episode:

NEW ORLEANS, 10th October, 1814.

Sir—I have very great satisfaction in reporting to you, that the contemplated expedition against the pirates, so long and strongly established among the western islands and waters of this state, of which I had the honor to inform you in my letter of the 10th ult. has terminated in the capture and destruction of all their vessels in port—their establishment on the islands of Grande Terre, Grand Isle and Cheniere Caminada, and the dispersion of the

[29] N, May 1, 1813.

[30] The *Democratic Review* of July, 1839, contains under the title "The Cruize of the Enterprize," subtitle, "A Day with Lafitte," an account by one of the officers of the *Enterprize* of his meeting with Lafitte at the site of the present city of Galveston in 1819. This account is well worth reading as presenting one side, and a favorable one at that, of Lafitte's character.

band themselves. The successful issue of this attack upon them will, I trust, prevent their ever collecting again in force sufficient to injure the commerce of this state.

The force of the pirates was twenty pieces of cannon, mounted, of different calibres, and, as I have learnt since my arrival, from eight hundred to one thousand men of all nations and colors.

I have brought with me to this city six fine schooners and one felucca, cruizers and prizes of the pirates, and one armed schooner under Carthagenian colors found in company and ready to oppose the force under my command.

Herewith I have the honor to transmit a detailed account of this expedition, which, I hope, will prove satisfactory to the department, as also a copy of a letter from Lafitte, the chief of the pirates, to captain Lockyer of H. B. M. brig *Sophia*, which forms the conclusion of a correspondence entered into between the English commanders in the Gulf of Mexico and the Floridas, and the pirates, copies of which his excellency governor Claiborne informs me he transmitted to the department of state. This correspondence shews the importance of the expedition and the important species of force we have prevented the enemy's receiving by their proposed alliance with the pirates, and added to our own.

I have the honor to be, with great consideration and respect; your obedient servant,

DANIEL T. PATTERSON.

The hon. Wm. Jones,
Secretary of the Navy, Washington.[21]

NEW ORLEANS, October 10, 1814.

Sir—I have the honor to inform you that I departed from this city on the 11th ult. accompanied by colonel Ross, with a detachment of seventy of the 44th regiment of infantry—on the 12th reached the schooner *Carolina*, at Plaquemine and formed a junction with the gun vessels at the Balize on the 13th—sailed from the south-west pass on the evening of the 15th and at half past 8 a. m. on the 16th made the Island of Grand Terre, (Barataria) and discovered a number of vessels in the harbor, some of which shewed Carthagenian colors—at 9 perceived the pirates forming their vessels, ten in number, including prizes, into a line of battle near the entrance of the harbor, and making every preparation to offer me battle—at 10, wind light and variable, formed the order of battle with the 6 gun vessels, viz. *Nos. 5, 23, 156, 162, 163* and *65*, the *Sea-Horse* tender, mounting 1 six pounder and fifteen men, and a launch mounting 1 twelve pound carronade; the schooner *Carolina* drawing too much water to cross the bar—at half past 10 perceived several smokes along the coast as signals, and at the same time a white flag hoisted on board a schooner, at the fore, an American flag at the main-mast head, and a Carthagenian flag (under which the pirates cruize) at her topping lift; replied with a white flag at my main; at 11 discovered that

[21] N, November 19, 1814.

the pirates had fired two of their best schooners; hauled down my white flag and made the signal for battle—hoisting with it a large white flag bearing the words "pardon to deserters," having heard there were a number from the army and navy there, who wished to return if assured of pardon, and which the president's proclamation offered till the 17th. At a quarter past 11 gun vessels *No. 23* and *156* (the latter bearing my pendant) grounded, and were passed agreeably to my previous order, by the other four which entered the harbor; manned my barge and the boats belonging to the grounded vessels, and proceeded in, when to my great disappointment I perceived that the pirates had abandoned their vessels, and were flying in boats, in all directions. I immediately sent the launch and two gun barges with small boats in pursuit of them—at meridian took possession of all their vessels in harbor, consisting of six schooners and one felucca, cruizers and prizes of the pirates, one brig, a prize, and two armed schooners under the Carthagenian flag, both in the line of battle, with the armed vessels of the pirates, and apparently with an intention to aid them in any resistance they might make against me, as their crews were at quarters, tompions out of their guns, and matches lighted. Colonel Ross at the same time landed, and with his command took possession of their establishment on shore, consisting of about forty houses of different sizes, badly constructed, and thatched with palmetto leaves.

When I perceived the enemy forming their vessels into a line of battle, I felt confident from their number and very advantageous position; and their number of men, that they would have fought me; their not doing so I regret; for had they, I should have been enabled more effectually to destroy or make prisoners of them and their leaders; but it is a subject of great satisfaction to me, to have effected the object of my enterprize, viz. capturing all their vessels in port, and dispersing the band without having one of my brave fellows hurt.

The enemy had mounted on their vessels twenty pieces of cannon of different calibre; and, as I have since learnt, from 800 to 1000 men, of all nations and colors.

Early in the morning of the 20th, the *Carolina* at anchor, about five miles distant, made the signal of "a strange sail in sight to the eastward"; immediately after, she weighed anchor, and gave chase, the strange sail standing for Grand Terre, with all sail; at half past 8 the chase hauling her wind off shore to escape; sent acting lieutenant Robert Spedden with four boats manned and armed to prevent her passing the harbor; at 9 a. m. the chase fired upon the *Carolina*, which was returned; each vessel continued firing during the chase, when their long guns could reach—at 10 the chase grounded outside the bar, at which time the *Carolina* was, from the shoalness of the water, obliged to haul her wind off shore, and give up the chase—opened a fire upon the chase across the island from the gun vessels—at half past 10 she hauled down her colors and was taken possession of by lieutenant Spedden—she proved to be the armed schooner called the *General Bolivar*, under the Carthagenian flag—by grounding she broke both her rudder pintles, and made water—hove her off in the course of the day,

and at day-light on the 21st sent out a small prize schooner to lighten her—took from her her armament, consisting of one long brass 18 pounder, one long brass 6 pounder, two 12 pound carronades, small arms, &c., and twenty-one packages of dry goods, and brought her into port; and as I could not wait for the repairs necessary for her rudder, ordered her to this port for adjudication. I am well convinced that she is one of the vessels belonging to, or connected with the pirates, as signals of recognition for her were found on board one of the pirate's cruizers, and at the time she was discovered, she was standing directly for Grand Terre, which she still endeavored to gain, after being chased by the *Carolina*, not knowing of our being in possession of it; she fired several shots at the *Carolina*, after the latter had shewn her colors.

On the afternoon of the 23rd got under way, with the whole squadron, in all seventeen vessels—(but during the night one schooner under Carthagenian colors escaped)—on the morning of the 24th entered the southwest pass of this river, and on the 1st inst. arrived opposite this city with all my squadron.

The amount of the prizes and prize goods will probably be considerable; but at present cannot be ascertained.

Three of the schooners are admirably adapted for the public service on this station, being uncommonly fleet sailers and light draught of water, and would be of infinite public utility.

I cannot speak in too high terms of commendation of the good conduct of the officers, seamen and marines whom I have the honor to command; nothing could exceed the zeal shewn by all on this occasion.

"Great credit is due to lieutenant Louis Alexis and Mr. Thomas Shields, purser, for gallantly leading in, in the face of the enemy; the former in the *Sea-horse* tender; the latter in the launch, when they had every reason to believe the enemy would open their whole battery upon them, supported by gun vessel *No. 5*, astern of them, commanded by Mr. J. D. Ferris; Mr. Shields very handsomely volunteered his services on this expedition, and has from his being a seaman rendered me great assistance in taking charge of and bringing one of the prizes to this city.

Lieutenant Thomas A. C. Jones, particularly distinguished himself by boarding one of the schooners which had been fired, and extinguishing the fire after it had made great progress; a quantity of powder being left in her open cabin, evidently designed to blow her up; he is also with lieutenant Norris, and acting lieutenant Thomas S. Cunningham, entitled to my thanks for the severe duty performed by them in open boats for several days and nights.

Acting Lieutenant Spedden merits particular notice for the handsome manner in which he led the boats to cut off the *General Bolivar*, and afterwards bringing her into port.

I am also greatly indebted to lieutenant Alexis, acting lieutenants Spedden and M'Keever, sailing masters J. D. Ferris, George Ulrick, and William Johnson, for their indefatigable exertions in fitting the prizes for sea; to acting lieutenant M'Keever, also, for his extreme attention to the duties

devolving on him from my pendant being hoisted on board *No. 23*, under his command. I beg leave, sir, to seize this opportunity of recommending these officers to your particular notice, and to solicit a confirmation of their present rank for acting lieutenants Robert Spedden, Isaac M'Keever, and Thomas S. Cunningham.

It affords me great satisfaction to inform you that the most cordial co-operation of Col. Ross, and the detachment of his regiment, in every measure adopted or duty performed, the utmost harmony existing between the two corps during the whole expedition, himself, officers, and men sharing in every enterprize or arduous duty where their services could be useful.

Had it been possible for the *Carolina* to have entered the harbor, or prudent to have drawn her officers and men from her, when anchored in an open roadstead, and where I had every reason to expect the appearance of enemy's cruisers, I should have derived great aid from Captain Henley, his officers and crew, who all expressed the strongest desire to partake of our toils, and any danger there might be to encounter, I have no doubt the appearance of the *Carolina* in the squadron had great effect upon the pirates.

I have the honor to be, with great consideration and respect, your obedient servant,

DANL. T. PATTERSON.

The honorable W. Jones,
Secretary of the Navy, Washington."[22]

In connection with this affair, it may be noted that President Madison, under date of February 6, 1815, pardoned all those Baratarian "pirates" who could prove to have aided in the defence of New Orleans at the time of Jackson's battle, January 8, a clemency which subsequent events showed to have been in some cases quite misplaced.

On November 11, 1814, Commodore Patterson wrote to the Secretary of the Navy, reporting the safe return of an expedition, under Lieutenant Thomas A. C. Jones, to Grande Isle, Cat Island, etc., where he captured two piratical schooners.

The disturbed condition, due to the revolt of Spain's Central and South American possessions, offered abundant opportunity to such as were so disposed to commit depredations on neutral shipping. That this state of affairs was not only serious in itself, but was clearly perceived by Commodore Patterson, and that he also recognized the necessity of preparing for the return of the Baratarians to their old practices, can be seen from his official

[22] N, November 19, 1814; also, S. O. (M. C. L.) XI, 64; E, 76.

correspondence of that time. It will suffice to quote two of his letters:

NEW ORLEANS, 7th April, 1815.

Sir: I do myself the honor to enclose for your information the copy of a letter received yesterday from His Excellency Governor Claiborne.

I had hoped that the generous pardon granted by the President to the Baratarian Association, added to the opening for employment afforded by the return of peace, and their dispersion last year, would have had the desired effect of preventing a recurrence of such iniquitous practices as have already taken place; information on which I could rely had reached me prior to the Governor's letter, that armed vessels had appeared off the western waters of this state and even off the Balize. I therefore dispatched Gun Vessel *No. 65*, strongly manned and armed, on the 4th inst. to the Westward, where I was informed two prize vessels (one French, the other Russian) had already been carried. In addition to *No. 65*, I dispatched to-day two heavy launches and one Gun Barge, with heavy carronades and strongly manned, on the same service, and which will, I think be sufficient to cope successfully with the force the smugglers may have in those waters at present.

The immediate return of these people to their former mode of life will point out the indispensable necessity of keeping a small active naval force on this station in time of peace. The communications to the sea from this city are very numerous, and all admirably calculated to facilitate the clandestine introduction of foreign articles, which during the continuence of the present duties will be attempted to a great extent, to the ruin of the honest merchant, defrauding the revenue and demoralizing the community.

By my letter of the 10th February I informed you that pursuant to previous instructions from the Honble., your predecessor, I intended purchasing a small schooner for the public service, and I now beg leave to report to you my having done so, and that in consequence of the last paragraph of your letter of the 15th February, I have added a second, both of which are admirably calculated for this station, are now fitting out, and when completed will, with my barges and launches, enable me in some measure, I trust, to enforce the revenue laws, prevent smuggling and piracy, and protect the commerce of this port from the force which those lawless freebooters for a time be able to procure, but which will, unless timely and efficient measures are taken to prevent it, rapidly increase. Those vessels once equipped, I will allow them no respite within the limits of my command. . . .

With sentiments of the highest consideration and respect,

I have the honor to be, Your obedient Servant,

DANL. T. PATTERSON.

The Honble.,
Benjamin W. Crowninshield,
Secretary of the Navy,
Washington City.[23]

[23] C. L., 1815, Vol. 3, No. 20.

As illustrating the amenities of the day, mention may be made of an offer of $5000 by Governor Claiborne for Lafitte's head and the latter's offer of $50,000 for Governor Claiborne's. Neither of these rewards was ever earned or claimed.

NEW ORLEANS, 17th April, 1815.

Sir:—By my letter of the 7th instant I had the honor to inform you that the Baratarians had returned to their former iniquitous course of life, and that I had dispatched a force against them; I have now great satisfaction in reporting to you my having received information that Lieut. Cunningham has succeeded in capturing the vessel alluded to in Governor Claiborne's letter, and one other, together with a schooner which the former had captured and took to Cat Island, doubtless with an intent to smuggle in her cargo. Vincent Gambier, who is particularized in the Governor's letter, is, I understand, also taken. I have not heard yet from Lieut. Cunningham; the above information I this morning received from two men who were prisoners to Gambier when he was captured by the Gun Vessel.

The American ship *Ceres*, just arrived, was boarded, I am informed, in the Gulf of Mexico by a Privateer under Carthagenian Colors and plundered of a part of her stores. The privateer had at the same time an English Vessel in tow, a prize, and was bound to Carthagena. I am daily applied to by the Consignees of Foreign Vessels, as also by their Captains, for protection against these Pirates, who have had the temerity to threaten to capture Spanish Vessels within our own Waters. So soon as the two Schooners, in dock, are ready, I hope they may attempt it, that I may have the satisfaction of bringing them to punishment.

Some months ago I wrote to the Honorable, your predecessor, soliciting instructions relative to Vessels sailing under Carthagenian Colors, for 'tis under this Flag that most of the Piracies are committed, and there is now added to that the Flag of the Patriots of Mexico, which will, I have no doubt, be also used as a cloak for every species of violence, Plunder and Piracy. These Vessels come to this Port: are received with the Hospitality of the most favored Nations: repair, equip and provision their Vessels, & clandestinely send off arms and men to the Sea Shore, with which to prey upon the commerce of this Port by capturing indiscriminately Vessels of every Nation bound thither, the cargoes of which are smuggled into this city, the Vessels are burned, and of their crews nothing is ever seen or heard. Permit me to request you to give me such instructions relative to armed Vessels under the above mentioned Flags as you may think necessary for my government.

Two fleet Brigs or Schooners, mounting 10 to 14 guns, attached to this Station, and which could be constantly kept cruising in the Gulf of Mexico, would afford great security to the commerce of this Port, which will be seriously injured unless the naval force is sufficiently strong to prevent it, and allay the fears of those engaged in it, which are already, I find, greatly excited.

General Gains and myself contemplate going to Grand Terre in a day or two, to fix upon a scite for a small Battery, to protect the entrance of Lake

Barataria, by establishing a Military Post there, which would greatly aid the Naval Force in effecting the apprehension or dispersion of the Pirates. A Proclamation from the President of the United States on the subject would give me great power over them, and greatly tend to their annihilation.

With sentiments of the highest consideration and respect,
I have the honor to be, Your Obedient Servt.,
DANL. T. PATTERSON.

The Hon'ble
Benjamin W. Crowninshield,
Secretary of the Navy,
Washington City.[24]

Evidently Patterson's letter on the subject of the Baratarians received immediate attention from the government, for we read:

A letter from Washington says that Barataria has again became a scene of pillage and smuggling but that orders were given immediately to break up the Establishment . . . . It appears that those concerned in these nefarious practices are of the old stock, who fought out a pardon for themselves when New Orleans was attacked.[25]

A good idea of the difficulty of navigating the Gulf of Mexico and the Caribbean Sea at this period can be derived from the following extracts from newspapers of the year 1815:

The sloop *Leander*, Davis, is said to have been plundered off Havana by a Carthagenian privateer.[26]

The Spanish ship *Carlota*, from New-York to Havana, put into Charleston in distress July 20, having been plundered by a small schooner under Carthagenian colors, but which Captain De Hita says was manned almost exclusively by Americans and was apparently from the United States. Captain De Hita sailed from New-York June 8th and was captured on the 13th of July. There was another Spanish vessel, the brig *Carmen* from Philadelphia, in possession of the privateer.[27]

The brig *Sailor Boy*, Devereaux, on her passage hence to Port au Prince was detained by a Carthagenian pirate and anchored on the north side of Cuba; after plundering the cabin of stores and the passengers and crew of their baggage and apparel, they were made prisoners and confined below. The pirates then commenced dismantling the vessel of her sails, rigging, and breaking open the hatches, &c., when a strange sail heaving in sight they left her in search of more valuable plunder.[28]

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[24] C. L., 1815, Vol. 3, No. 54.
[25] N, May 27, 1815.
[26] PA, July 26, 1815.
[27] PA, July 31, 1815.
[28] PA, October 27, 1815, under Commercial Intelligence.

Just what Patterson's squadron accomplished during this year in its efforts to rid the seas of this continual menace is not definitely known, but one of his lieutenants, Thomas Cunningham, commanding the schooner *Fire Brand*, in September, recaptured an American brig and Spanish ship from pirates near "Isle Cayu," 50 miles west of Barataria. "A pilot boat, a schooner of about 90 tons, mounting one 12-pounder on a pivot, has been cruising for 15 days without a commission. The United States schooner *Fire Brand* hove in sight and was taken for a merchantman, the pirate firing two shots into her. The *Fire Brand* captured the pirate and had also taken a ship from the Baratarians, a Spaniard captured by Carthagenians and given up to the Baratarians."[28]

1816-1818

The events of 1816 do not vary in any essential from those of the immediately preceding years. An important capture was that of the *Comet*, of which the official report follows:

NEW ORLEANS, 24th April, 1816.

Sir: . . . . The *Boxer*[29] captured an armed schooner under Carthagenian Colours, Commanded by a man named Mitchell, a most notorious Pirate. He had the hardihood to come into this River while the *Boxer* lay at the Balize, having on board 14 slaves and plunder of various kinds to a large amount, retained from the unfortunate persons who took passage on Board his Schooner when flying from Carthagenia, all of whom he landed on a small island on the Musquito Shore, and stolen from the Spanish Island of St. Andrews, the Governor of which, with six Soldiers, he caused to be shot. The Grand Jury have found a Bill against Mitchell and crew, and they have been turned over to the Civil authority. The Vessel, with the goods and effects found on Board her have been libelled for a Breach of the Slave laws.

I presume 'tis Mitchell, the Commander of this Schooner, that is alluded to in this letter.

I have the honor to be, with great respect,

Your obt. Svt.,
DANL. T. PATTERSON.

The Honbl.
Benj. W. Crowninshield,
Secretary of the Navy,
Washington, D. C.[31]

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[28] N, October 21, 1815.
[29] Brig, 14 guns, under Lieutenant J. Porter.
[31] C. L., 1816, Vol. 2, No. 87.

The following is the enclosure mentioned in the foregoing letter:

NEW ORLEANS, April 15, 1816.

Sir: A most nefarious conspiracy is now forming against the Naval Officers of this place. Some of the villians who were formerly engaged in the noted piracies are now lurking here and meditate an attack on the lives of the officers, in revenge for past occurrences. They also intend blowing up the *Tom Bowline*[32] or destroying her in some way or other. Let me beseech you to take proper preventative measures, as I believe the time for doing the Business is already appointed.

Who I am and my reasons for divulging the above cannot now be explained, but shall be before long.

Beware of Mitchell.

Commodore Patterson.

Some details of this affair are contained in a letter from an officer on board the *Boxer:*

We have captured and sent to New Orleans for trial the privateer *Comet,* under Carthagenian colors, having on board doubloons, Spanish dollars, bars of gold and silver, silver plates, jewelry, &c., valued at 50,000 dollars. She attempted to pass us but we were too quick on the trigger for her; we even did not fire a gun but merely trained them on her, which was sufficient.[33]

Such acts, however, were not confined to the neighborhood of New Orleans:

We have some unpleasant accounts, but happily they are not very numerous, of acts of piracy in the West Indies. The depredators appear to be gathered of many nations and attack equally American and British vessels. Some irregularities have also been committed by vessels under the Spanish patriot flag; which, we hope, for their sake as well as our own, may be restrained.[34]

The impossibility of distinguishing between privateering and piracy, when we were the victims, seems to have been equally experienced in cases where we were the aggressors. The lure of the traffic, it would seem, was often greater than respect for international comity, and American seamen took no small part in the questionable traffic—to-day privateering, to-morrow sheer piracy. There is no good reason for challenging the substantial accuracy of the Spanish Minister's protest on this subject, addressed to the Secretary of State:

WASHINGTON, January 2, 1817.

Sir: The mischiefs resulting from the toleration of the armament of privateers in the ports of this Union, and of bringing into them, with

[32] Schooner—storeship.

[33] PA, May 16, 1816.

[34] N, November 30, 1816.

impunity, the plunder made by these privateers on the Spanish trade, for the purpose of distributing it among those merchants who have no scruples in engaging in these piracies, have risen to such a height, that I should be wanting in my duty if I omitted to call your attention again to this very important subject.

It is notorious that, although the speculative system of fitting out privateers and putting them under a foreign flag, one disavowed by all nations, for the purpose of destroying the Spanish commerce, has been more or less pursued in all the ports of the Union, it is more especially in those of New Orleans and Baltimore where the greatest violations of the respect due to a friendly nation, and, if I may say so, of that due to themselves, have been committed; whole squadrons of pirates having been (fitted) out from thence, in violation of the solemn treaty existing between the two nations, and bringing back to them the fruits of their piracies, without being yet checked in these courses, either by the reclamations I have made, those of His Majesty's consuls, or the decisive and judicious orders issued by the President for that purpose.

(Signed) LUIS DE ONIS.[35]

This practice was made the subject of extensive investigation by the Spanish authorities:

By *real órden* of July 18, 1817, the intendant was instructed to secure evidence of injuries to the crown and subjects of Spain, caused directly or indirectly by the conduct of the government or subjects of the United States. The merchants of Havana were thereupon requested by the intendant to supply him with statements of their losses from pirates or insurgent privateers since the year 1808. The information obtained was embodied in an *expediente*, entitled, Report showing the losses which the commercial houses of Havana have suffered in their maritime expeditions since the year 1808, a document of about 100 pages, containing a multitude of interesting details relative to the commerce of the time, as well as to the activities of the pirates. The losses of 36 houses were estimated at 2,733,584 dollars from September 1808, to the year 1817. Two other *expedientes* were subsequently formed to complete the report of these losses . . . .[36]

This digression from our story is due to a desire to place before the reader the main facts, whether creditable or no. That Americans were by no means guiltless is tacitly admitted by certain of our own officials, and a result, quite curious in itself, of the temporary waning of piracy, is thus reported officially. Robert M. Harrison, consul of the United States at the Island of St.

[35] FR, IV, 134.

[36] AHC, 58—"The three *Expedientes* are enclosed with letters of the intendant of dates November 17, 1817, no. 58; January 11, 1818, no. 559; and April 23, 1818. *Cf.* nos. 204, 212."

Thomas, writes to the Secretary of State, under date of April 20, 1817:

The increasing number of American seamen, whose ill success in the privateers and pirates that infest those seas, induces them to relinquish those unprofitable pursuits, whenever an opportunity offers, and who almost universally swarm to this island to claim my protection and support, so that they daily almost surround my door, renders it again my duty to request instructions from the Department of State. I have not yet extended to such men, any more than a partial assistance, though many of them are in the greatest possible distress, considering that the expenditure of such large sums of money might be considered as advancing beyond the bounds of my duty. It is much to be regretted that the disappointment sustained by so great a number of our seamen, should not be sufficient to deter others from embarking in such enterprizes.[87]

Mr. Harrison also deplores the lack of American cruisers, again writing to the Secretary of State:

ST. THOMAS, May 30, 1817.

Numbers of American vessels, originally bound to the Spanish Main, where their cargoes could have been disposed of to great advantage, have been deterred from a prosecution of their voyage, from a dread of the piratical cruisers that infest those seas, and have been actually obliged to sacrifice their property here, whilst English vessels prosecute the trade in perfect safety, merely from the circumstance of there being a few English vessels of war on the West India seas. The presence of one of our smallest armed vessels would completely awe those marauders and enable our merchant vessels to prosecute a legal trade in safety. Her presence (of the *Boxer*) in this neighborhood would be attended with the most salutary effects.[87]

The depredations upon American commerce in the Gulf of Mexico during the years around 1817 seem to have been the accompaniment of a widespread movement by organized bodies to carry on an illicit trade in slaves and smuggled goods. It is difficult, at times, to draw the line between mere infractions of law and the graver consequences flowing from those infractions. The general situation is officially stated in the following extracts from a letter from Beverly Chew, Collector at New Orleans, to Mr. Crawford, Secretary of the Treasury, dated August 1, 1817:

As it is your wish that every attempt to evade the provisions of the existing laws should be communicated to the Department, accompanied by suggestions of the measures necessary to repress the evil, I deem it my duty to state that the most shameful violations of the slave act, as well as

[87] SPD, Vol. XI, 246.

our revenue laws, continue to be practised, with impunity, by a motley mixture of freebooters and smugglers, at Galvezton, under the Mexican flag, and being, in reality, little else than the re-establishment of the Barrataria band, removed somewhat more out of the reach of justice; and, unless the officers of the customs are provided with more effectual means for the enforcement of the laws, the treasury must suffer incalculably. To give you a more correct idea of this establishment, it will be necessary to be a little prolix, which I beg you will excuse. Galvezton is a small island or sand-bar, situate in the bay of St. Bernard, on the coast of Texas, about ninety miles west of the Sabine, within the jurisdictional limits claimed by the United States, in virtue of the cession of Louisiana to them by France. The establishment was recently made there by a Commodore Aury, with a few small schooners from Aux Cayes, manned in a great measure, with refugees from Barrataria and mulattoes. This establishment was reinforced by a few more men from different points of the coast of Louisiana, the most efficient part of them being principally mariners, (Frenchmen or Italians) who have been hanging loose upon society in and about New Orleans, in greater or smaller numbers, ever since the breaking up of the establishment of Barrataria. Colonel Perry commanded one party of about eighty or ninety men of this new community, who had been enlisted principally as soldiers within our jurisdiction; and Mr. Herarra, coming with a few followers from New Orleans, brought up the rear; and then announced the establishment to the world by a proclamation, attested by a Frenchman by the name of Morin, very recently a bankrupt auctioneer in New Orleans, as Secretary of State. From this new station, fed and drawing all its resources from New Orleans, and keeping up a regular intelligence, through a variety of channels, with their friends here, an active system of plunder was commenced on the high seas, chiefly of Spanish property, but often without much concern as to the national character, particularly when money was in question. The captures made by their numerous cruisers (many owned by citizens of the United States) were condemned by a pretended court of admiralty there as prizes, and the cargoes introduced into this State, principally in a clandestine manner. The vessels thus condemned have generally come here under new names, and with the Mexican flag. Some of them have been detained by the United States naval force for hovering in our waters, and others have been libelled for restitution by the Spanish consul, in behalf of the original owners; and though several trials have come on before the honorable the United States district court for the district of Louisiana, and the claimants have never been able to produce proof of the Government of Galvezton having ever been authorized by the Mexican republic, restitution has been decreed in several instances. There is no evidence of the establishment having been made or sanctioned by, or connected with, a Mexican republic, if one be now existing; and the presumption of such an actual establishment under such an authority is strongly repelled by the illegal and piratical character of the establishment, and its ambulatory nature. It is not only of very recent origin, but it is clothed with no character or permanency; for it was abandoned about the 5th of April, and transferred to Mata-

gorda,[38] leaving at Galvezton only an advice boat, to advertise such privateers and prizes which might arrive there of the spot on which they had fixed their new residence. Some days after the abandonment of Galvezton, several privateers arrived there, and among the rest the *General Artigas*, commanded by one G. Champlin, of New York, with two schooners, her prizes, the *Patronila*, with one hundred and seventy-four slaves, and the *Enrequita*, with one hundred and thirteen slaves; and also a Spanish and a Portuguese vessel, and the American schooner *Evening Post*, of New York, Calvin Williams, master, prizes to the ———,[39] Captain Maurice Nicholas Jolly.

Among the most conspicuous characters who happened to be then at Galvezton were many of the notorious offenders against our laws who had so lately been indulged with a remission of the punishment, who, so far from gratefully availing themselves of the lenity of the Government to return to or commence an orderly and honest life, seem to have regarded its indulgence almost as an encouragement to a renewal of their offences. You will readily perceive I allude to the Barratarians, among whom the Lafittes may be classed foremost, and most actively engaged in the Galveston trade, and owners of several cruisers under the Mexican flag . . . .

On the part of these pirates we have to contend with, we behold an extended and organized system of enterprise, of ingenuity, of indefatigability, and of audacity, favored by a variety of local advantages, and supported always by force of arms; and, unless they be met by correspondent species of resistance, the results of the contest are of very simple calculation.[40]

As a matter of fact, the Galveston gang, under "Commodore Aury," had, even at the time of Chew's writing, moved to Amelia Island,[41] in East Florida. Later in the year a joint expedition under Captain J. D. Henley, U. S. Navy, in the *John Adams*, and Major James Bankhead, U. S. Army, was despatched to break up this den and to stop smuggling and the slave trade. This was completed without bloodshed, Aury surrendering on December 24. We may suspect that Aury did not refrain from acts of piracy prior to that time, although evidence on this point is lacking.

The merry game of privateering went gaily on, largely, it was believed, by vessels fitted out in American ports. That there was good ground for this belief is manifest from the renewed protests filed in our Department of State by the Spanish Minister, Don

[38] About 100 miles southwest of Galveston.
[39] Query.—The *Admiral Brion?*
[40] FR, IV, 134.
[41] On which is built the present city of Fernandina.

Luis de Onis, under dates of January 15 and 16, February 10 and 11, 1817, as well as subsequently, on March 11, 26 and 29, and April 4.[42]

While Spanish vessels were the chief sufferers, those under other flags were not spared. Captain Charles Morris, writing to the Secretary of the Navy from Balize, on June 21, 1817, says: "Since my last report of the 10th instant, complaints have been made of unwarrantable violence on vessels of the United States upon the coast of Campeachy by small patriot privateers. I have given orders for their detention should our vessels fall in with them."[43] Captain Morris, in the frigate *Congress*, had relieved Commodore D. T. Patterson at New Orleans, and had assumed command of the entire West Indies squadron.

On July 28, Patterson, in command of the New Orleans Station, wrote to the Secretary of the Navy that "two American brigs have been robbed of Specie to a considerable amount in the Bay of Campeachy on their way thence from this port by a vessel under the Venezuelan flag—and the American Brig *Charles* bound from this Port to La Vera Cruz laden with Flour, American property, was boarded on the 11th ultimo by the Mex. Arm'd Vessel called the *Mexican Congress* and robbed of all her papers and her Mate detained on board."[44]

Beverly Chew, Collector at New Orleans, wrote, under date of August 30, 1817, that the United States brig *Boxer* had sent in two small schooners with 30 slaves on board, and stated that Commodore Patterson had sent to the Secretary of the Navy a memorial of certain merchants in New Orleans, praying him to furnish convoy against "these piratical cruisers."[45]

[42] FR, IV, 184 *et seq.*
[43] C. L., 1817, Vol. III, No. 36.
[44] SPD, XI, 378.
[45] FR, IV, 135.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE TORPEDO AND SUBMARINE BRANCHES OF THE GERMAN NAVY

By COMMANDER REGINALD R. BELKNAP, U. S. Navy

At this time of reorganization in our service, taking place extensively in some branches, not so perceptibly in others, the following study of the organization and administration of the torpedo branch of the German Navy may be not without interest to our service at large, as it was last March to the submarine flotilla, for whom, at the instance of Commander Stirling, it was first written. It is drawn up from official and semi-official publications, such as *Organization and Administration of the Imperial Navy,* by Lieutenant Commander Ferber; the *Navy Register, Organic Regulations for the Active Military Personnel of the Imperial Navy,* the *Naval Pocket Book,* the *Naval Gazette,* the *Naval Estimates, Nauticus* and several books by Count Reventlow. There is a great deal of information obtainable of the details of organization, administration and training of the German Navy, by study of the many publications on sale. This description relates to the organization and its development up to the spring of 1914.

A notable early success of Admiral von Tirpitz in the field of organization was accomplished in the torpedo branch of the German Navy. Notwithstanding the indifference, not to say passive opposition, of the then Naval Secretary who had little appreciation of the true function of a naval force, the efforts of Tirpitz, then only a captain, prevailed, and the torpedo service was established on a doctrine of instant readiness, initial offensive, and attack always in considerable numbers. From that time dates the present efficient system.

THE TORPEDO INSPECTION

One principal characteristic of the German service is that the torpedo branch develops entirely separate from the general service, up to the point where it is ready for its function as a regular constituent of the fleet. Then it comes directly into the fleet like other types. The idea is that if it has to share with other types the facilities for training, maintenance, repair and improvement, and most of all, the professional interest of those in authority, the torpedo branch will not receive the *undivided* attention which full development requires. The system perfected by von Tirpitz aimed to combine the maximum benefits of specialized growth with those of co-ordinated employment. Immediate and continued improvement have shown its success.

In all but commissioned personnel, the torpedo branch is as much separated from the other naval branches as cavalry from infantry in the army. The separation begins with the administrative head and continues throughout down to the yearly intake of recruits. The torpedo branch is termed the "Inspection of Torpedo Affairs." Its head is a flag officer, latterly a rear admiral. His designation is "Inspector," a title indicating military control as well as direction of matters peculiar to the specialty. The duty of the Torpedo Inspection is, in general terms, to maintain the efficiency of the torpedo arm and torpedo vessels for war, and to co-operate in the further development of the torpedo.

In technical, experimental and non-military administrative affairs, the Torpedo Inspection deals directly with the Navy Office in Berlin, which is headquarters for all such matters. In military administration, the Torpedo Inspection, in common with the inspections of other branches (gunnery, personnel depot, education, coast artillery, mines and obstructions, munitions' depots) and other naval personnel not in the active fleet, is under the superior authority of the chiefs of the two great naval stations, of the Baltic and of the North Sea, between which the navy is halved—as if we had one comprehensive naval administration on the Atlantic coast seated at New York, and a similar one on the Pacific with seat at San Francisco, the two co-ordinated by an admiralty at Washington. These great chiefs take final action in disciplinary matters, without reference to the Secretary of the Navy. The Secretary has no occasion to intervene. Over regu-

lations and procedure he has general control, through their formulation in the Navy Office; but responsibility for discipline is placed with the officers in military command, whose experience, rank, accountability and authority are commensurate. These chiefs, and the commander-in-chief of the fleet as well, answer for their charges directly to the Emperor.

Briefly, the Inspector of Torpedo Affairs stands in nearly the same relation to the torpedo branch as the Secretary does to the German Navy as a whole. In relative degree, the Inspector, like the Secretary, has a comprehensive cognizance and responsibility, with the aim of ultimate maximum efficiency in use. Yet, in order that he may devote his energy to the specialty in its appropriate military relations, the Inspector, like the Secretary, is left untrammelled by every-day details. Discipline, subsistence, clothing, housing, recruiting and routine and elementary training and maintenance of the torpedo branch do not differ essentially from the same requirements elsewhere in the navy. Hence, they can be and are assigned to regular administrative authorities charged with those duties and none other.

It may be noted in passing that, in studying the German administrative system, one becomes more and more impressed with the directness of arrangement, whereby every official, military or civil, has duties befitting his proper caliber. No one is burdened with details that can be better, more accountably, executed by another in closer touch with the point of action. In an article on "Military History and the Science of Business Administration," Professor Edward D. Jones, says: "For the lodging of any administrative function, and the resting of the corresponding responsibility, there must be a certain ideal point in the administrative hierarchy of any organization. This point is where the problem of keeping touch with the specific details of the agencies of the action controlled is approximately equal in difficulty to the problem of keeping in touch with the general plan of which that action is a part. To move a function from this point towards headquarters is to lose touch with specific conditions; to move it closer to the agencies of performance is to lose touch with the general plan." The appropriateness of location of the "ideal points" throughout the German organization shows great sagacity as well as the mark of experience.

THE TORPEDO HEADQUARTERS

The seat of the Torpedo Inspection is at Kiel. The Inspector has for his immediate staff:

Chief of staff	A captain.
Adjutants	3 lieutenant commanders and lieutenants.
Assistants	2 lieutenants.
Inspecting engineer	Naval engineer (rank of lieutenant commander).
At disposition	2 naval engineers.
Torpedo experts	2 torpedo engineers (commander and lieutenant).
	1 torpedoist lieutenant (ex-warrant officer with rank of lieutenant).
Inspecting medical officer	A medical director.
Inspecting pay officer	A paymaster.
Director of ship construction	A naval constructor (rank of commander).
	4 more naval constructors and assistant constructors.
Director of machinery construction	A constructing naval engineer[1] (rank of captain).
	2 more constructing naval engineers.
In charge of torpedo laboratory	A civilian professor with assimilated rank of captain.
For acceptance trials of new torpedo-boats	2 lieutenants.
	2 naval operating engineers.

As thus constituted, the torpedo Inspector and his staff may be regarded as a branch of the Navy Office, for the administration of the torpedo branch in financial, technical and other matters peculiar to the specialty. How completely affairs are left to the Torpedo

[1] Constructing marine engineers and ship (hull) constructors are graduated from a four-year course at Charlottenburg (Berlin) Technical High School or other similar institute of equal standing. The course is the same for both for the first two years; then the specializing begins. The course for the machinery constructor is by far the more difficult of the two and frequently students take five years instead of four to accomplish it. Constructing engineers do not go to sea. The operating engineers, called marine engineers, form a separate corps. They are not concerned with design, construction, or navy yard work, for all which the constructing engineers are responsible; but one is at each yard in charge of the machinery of ships ready for commissioning, *i. e.*, not under repair.

Inspection and the full extent to which the Secretary has divested himself of concern are shown by the fact that the Navy Office, of which the Secretary is the head, touches torpedo affairs at only two points. In the Dockyard Department of the Navy Office (which is equivalent to our Bureaus of Steam Engineering, Construction and Repair and Yards and Docks, combined under a common head), there are:

A division for torpedo affairs and radiotelegraphy: 1 captain, 2 lieutenant commanders, 1 lieutenant, 1 engineer, 1 physicist.

A desk for the administration of funds allotted to new construction of torpedo-boats and submarines: 1 naval intendant, a civilian, with assimilated rank of commander, who has also a similar desk in the construction department, in connection with funds for other new construction.

These two functions in the Navy Office in Berlin are in fact less in control over the Torpedo Inspection in Kiel than they are its own representatives, its friends at court, to see that torpedo interests are duly appreciated and fostered in the general naval administration. They are no more than the indispensable connecting links between the comprehensive administration and its executive agency for the torpedo specialty.

It is noteworthy, incidentally, that the German bureau corresponding nearly to our Bureau of Ordnance, although it has the more comprehensive name of "Weapon (or Arms) Department," has nothing to do with torpedoes or mines, but has cognizance only of guns, small arms and ammunition.

In fine, the Torpedo Inspection is like a Navy Department for the torpedo service, and bears to the real Navy Department a relation like that which the Navy Department bears to the general Government.

From the foregoing it follows that the Torpedo Inspection is relieved of all normal functions which can be better performed on the spot by others of equal military experience and wisdom, and is left free to devote itself to matters to which no other body can attend with equal ability. Nor can any other body interfere or work counter. The Torpedo Inspection can therefore wholly devote itself, to, and be responsible for, the following:

(a) Organization of torpedo-boats, half-flotillas and flotillas.
(b) Regulations for the torpedo branch.

(c) Training regulations and standards.

(d) Training of torpedo flotillas, military, nautical and tactical, from the beginning up to readiness for acting with the fleet in war.

(e) Design, construction, trial and acceptance of torpedo-boats.

(f) Supply and maintenance of the stock of torpedoes.

(g) Improvement and development of the torpedo, including experimentation.

(h) Proving of the torpedo installations of ships.

(i) Training and supply of the torpedo personnel of ships.

(j) All training of officers and men for torpedo duties.

(k) Radiotelegraphy. The vessels used for torpedo experiment, training and trial are used similarly for radiotelegraphy.

THE TORPEDO DIVISIONS

The German organization corresponding to our destroyer division is the half-flotilla. It consists of five seagoing torpedo-boats, one of them the "Leader Boat," which carries, besides her own captain, a lieutenant or lieutenant commander as the half-flotilla chief. Boats are built in groups of six usually, often four and sometimes all six to one builder, so that all of the group may be alike, besides saving cost. Only three builders compete—Schichau at Elbing, near Danzig, whose boats bear the designation "*S*," as *S-176;* the Vulcan works at Stettin, "*V*"; and Germania (Krupp's) ship yard at Kiel, "*G*." This forever carrying their initial is not without influence on the builders.

Two half-flotillas combined, together with an eleventh boat like the rest, as "Flotilla Ship," make a torpedo-boat flotilla. The chiefs of these are lieutenant commanders. The flotilla is the largest regular tactical organization, but the half-flotilla is equally complete as a tactical unit.

For administration, training and maintenance the half-flotillas are grouped in torpedo divisions, the I, II, III to VI (first, second third to sixth) half-flotillas forming the I (first) torpedo division, based at Kiel, the VII to XIV half-flotillas forming the II torpedo division, based on Wilhelmshaven. The torpedo division is an administrative unit, not a tactical organization. It is a permanent shore station organization, forming a personnel depot for supplying the entire crews of torpedo-boats and the men for torpedo duties of other ships. It has barracks, boats for training, and

reserve half-flotilla organizations from which to form the active half-flotillas.

The torpedo division has a military organization like a regiment, as follows:

I. TORPEDO DIVISION

Commandant[2]	A captain.
Adjutant	A lieutenant.
Court martial officer	A lieutenant.
Division engineer	A naval engineer (rank of lieutenant).
Division medical officer	A medical inspector.
Division pay officer	A paymaster.
Gunnery instructors	4 lieutenants.

The division is made up of battalions:

I. BATTALION II. BATTALION III. BATTALION

Each battalion furnishes the officers and men for the complements of two half-flotillas, respectively, making:

I. TORPEDO-BOAT FLOTILLA II. TORPEDO-BOAT FLOTILLA III. TORPEDO-BOAT FLOTILLA

Each torpedo battalion is composed of two companies:

I. BATTALION

1st Company *2d Company*

Each company furnishes the complements of five boats forming, respectively, when not active:

I. RESERVE HALF-FLOTILLA II. RESERVE HALF-FLOTILLA

When "activated" in full commission these become:

I. HALF-FLOTILLA II. HALF-FLOTILLA

Together, these two active half-flotillas and an eleventh boat, half its crew taken from each company, form the I torpedo-boat flotilla.

[2] With us, "commandant" implies a shore, semi- or non-military command, but in Germany and elsewhere on the continent it denotes a strictly military command, corresponding to our "commanding officer." Thus, a vessel, a fortification, a battalion, each has a "commandant."

The other battalions are similar:

II. BATTALION

In barracks	3d company.	4th company.
In reserve status	III. Reserve half-flotilla.	IV. Reserve half-flotilla.
Active	III. Half-flotilla.	IV. Half-flotilla.

These two half-flotillas form the II. TORPEDO-BOAT FLOTILLA

III. BATTALION

In barracks	5th company.	6th company.
In reserve	V. Reserve half-flotilla.	VI. Reserve half-flotilla.
Active	V. Half-flotilla.	VI. Half-flotilla.

These two half-flotillas form the II. TORPEDO-BOAT FLOTILLA

The II Torpedo Division is similarly made up to man the IV, V, VI and VII torpedo-boat flotillas. The presence of four flotillas here, against three in the I division, is explained by an increase in the standing naval force.

Each company, besides manning the corresponding half-flotilla, retains at the barracks *stems,* of the company and of the reserve half-flotilla organizations, as nuclei with which further crews can be readily organized and trained.

In the companies, or shore organizations, military training is given, with small arms, physical exercises, and general service instruction, as basis for the development of training afloat. The latter is done by part crews on board the two school torpedo-boats and the boats of the reserve half-flotilla. Each reserve half-flotilla keeps one boat with full complement, but with double the regular number of line officers, for instructors. Crews get their training as a whole when the reserve half-flotillas are "activated" into full commission as half-flotillas.

The following diagram indicates the distribution of duties in a battalion or flotilla, showing the duties while on shore, while afloat in the reserve status, and when in full commission:

DISTRIBUTION OF BATTALION—FLOTILLA DUTIES

I. BATTALION.....FURNISHES ALL THE COMPLEMENTS FOR THE.....I. TORPEDO-BOAT FLOTILLA

Commandant.....a lieut. commander, becomes.....flotilla chief.
Adjutant.....a lieutenant (j. g.).....does not go in flotilla.
Battalion engineer.....a naval engineer, rank of lieut., becomes.....flotilla engineer.
For school torpedo-boats.....a naval engineer, rank of lieut.
Medical officer.....a surgeon, rank of lieut. comdr. } .....do not go afloat with the flotilla.

1ST COMPANY trains in the.....I. RESERVE HALF-FLOTILLA, which becomes the.....(active).....I. HALF-FLOTILLA

Company leader, becomes.....commandant of reserve half-flotilla, becomes half-flotilla chief, but he does not command the leader boat.
An older lieutenant or lieut. comdr. — One boat is in full commission; the above officer is captain of this boat. — same boat becomes half-flotilla leader-boat, but it has a different officer, a lieutenant, as captain.

1st officer, a lieutenant who.....commands a different boat } in the half-flotilla when activated.
3 lieutenants (j. g.) who.....belong to 3 other boats .. } in the half-flotilla when activated.

half-flotilla engineer, naval engineer..... } go in the half-flotilla leader-boat.
half-flotilla pay officer, paymaster..... } go in the half-flotilla leader-boat.

Company officers, 3 lieutenants..... } who are in charge of boats in reserve, and { command boats.... { in the active half-flotilla. / belong to boats.... { in the active half-flotilla.
2 lieutenants (j.g.) } who are in charge of boats in reserve, and { command boats.... { in the active half-flotilla. / belong to boats.... { in the active half-flotilla.

Two more lieutenants command two school torpedo-boats (old, but still serviceable for training of specialists). — These two lieutenants command boats { when in full commission (or "activated")

The company is a personnel depot for receiving, training, and after completion of their terms of active service, keeping the reservists rolls and assignments. } furnishes { One full crew, living on board, four and one-half crews and the "stems" living in barracks. } making { All the crews of the five activated boats, half the crew of the flotilla ship (boat), all living on board the boats; they being in full commission.

Thus, the 6 lieutenants and 5 junior lieutenants, having duty in the 1st company and 1 reserve half-flotilla, are the officers (a captain and one other officer for each boat) of the 5 boats of the active half-flotilla, plus the captain of the flotilla ship or flag-boat. The other officer for the flag-boat and half her crew come from the 2d company.

2D COMPANY — II. RESERVE HALF-FLOTILLA — II. HALF-FLOTILLA

Organization is practically the same as the above.

I. FLOTILLA

Chief of flotilla.....Lieutenant commander.
Flag lieutenant .....Lieutenant (commands the flotilla ship, when a torpedo-boat.)
Flotilla engineer .....Naval engineer, rank of lieutenant (j. g.).
Flotilla pay officer .....Paymaster with rank of ensign.

Flotilla ship, a torpedo-boat, like the rest.

Commandant .....Lieutenant (flotilla flag lieutenant).
First officer .....Lieutenant (j. g.).

In training the half-flotillas, scout cruisers are much used as flotilla ships.

	I. HALF-FLOTILLA	II. HALF-FLOTILLA
Half-flotilla chief	Lieutenant.	Lieutenant.
	These do not command the leader boats.	
Half-flotilla engineer ..	Naval engineer, rank of lieutenant (j. g.).	Same.
Half-flotilla paymaster.	Paymaster (ensign).	Same.
Leader boat		
Commandant	Lieutenant.	Lieutenant.
First officer	Lieutenant (j. g.).	Lieutenant (j. g.)
Added for war or mobilization.....	Lieutenant (j. g.).	Lieutenant (j. g.)
Four other boats	Same as leader boat.	Same as leader boat.

In the II and V flotillas, which in 1914 were the so-called "Maneuver Flotillas," each boat carried the full complement, a lieutenant and two junior lieutenants. The maneuver flotillas operate with the fleet more than do the "Reserve" and the "School" flotillas, which, in 1914, were the I and IV, and the III and VI, respectively. The "School Flotillas," being in their first year of training, carry two officers below the captain in each boat, and the officers are younger, usually an ensign in place of a second junior lieutenant. In other respects, the organizations of the school and maneuver flotillas agree with that given of the I flotilla.

The crew ratings on board a torpedo-boat are: torpedo ordinary seaman, seaman, boatswain's mate, chief boatswain's mate, torpedo quartermaster (or navigating boatswain) and torpedo chief quartermaster. The last two are warrant grades. Below

deck are torpedo firemen, upper firemen, torpedo machinist's mates (second class), machinist's mates (first class), and torpedo chief machinist's mates, torpedo machinists and chief machinists, these last two also being warrant grades. In barracks the companies have two more ratings, corresponding to police sergeant of warrant status.

It came about that in 1914 the I torpedo-boat flotilla was in its third year of training, which gave to it the designation of "Reserve Flotilla." In 1913, the III flotilla was the reserve flotilla. The reserve flotilla personnel are fully trained, having had at least two consecutive years instruction and experience. Normally, these boats are fully commissioned only for about eight weeks, from mid-July until after the autumn maneuvers in September. The rest of their year is mainly stand-by and, for specialists, keeping their hand in, using the school torpedo-boats. Prior to 1912, the fleet law did not require full crews ready for all boats, so that part of the reserve flotilla crews could be furloughed for a large part of the year. This arrangement spared expense and gave the men opportunity for some temporary civil employment.

The organization of the II battalion (comprising the 3d and 4th companies—III and IV reserve half-flotillas—III and IV half-flotillas, forming the II torpedo-boat flotilla), is similar to the foregoing, except that there are no school torpedo-boats attached. Consequently, more officers are on duty as company officers. This means that the II torpedo-boat flotilla, in 1914, being in its second year of training and therefore designated the "Maneuver" flotilla (which will be explained later), is for more and longer periods in full commission during the year, and is more frequently with the fleet. Hence, its periods in reserve are shorter, and during them its men are actually in barracks, not furloughed in large numbers and for lengthy periods, as used to be done with the reserve flotilla personnel. Similarly, the organization of the III battalion conforms to that of the II battalion, II torpedo-boat flotilla. For 1914, in the II torpedo division, at Wilhelmshaven, there is a fourth battalion and torpedo-boat flotilla, numbered VII (the other II torpedo division flotillas are numbered IV, V and VI). This was a step to increase the standing organization gradually, as will be later explained.

The standing organization prior to 1912 kept personnel always on hand sufficient for half the torpedo-boats to be in full com-

mission. For about two months each summer, enough furloughed men were called in to complete the crews for all boats. The amendment of 1912 to the fleet law prescribed the keeping on hand, in the boats or barracks, of full crews for all boats, at that time six flotillas. The result of this system of organization, with a large personnel reserve back of it, is that at the outbreak of the present war, the whole torpedo-boat force was immediately in full commission, and in a few days the company stems in the torpedo division barracks were filled up again by ex-torpedo-boat reservists, soon able to man the forty-odd boats not already assigned to the first seven flotillas. Early in 1914 there were 130 torpedo-boats serviceable, of later date than 1899, of tonnage from 400 to 700, and speed from 26 to 32.5 knots. Out of these, 11 flotillas could be formed, or four additional to those of the standing organization. Besides these larger boats, there were fifty-odd smaller, older boats, of from 150 to 350 tons and 20 to 23 knots, serviceable as mine-searchers, school torpedo-boats and tenders.

TORPEDO-BOAT PERSONNEL

The enlisted personnel of the German torpedo service are the pick of the men assigned to the navy. The laws governing military service prescribe that the seafaring population (seamen, fishermen, seagoing ship carpenters, sailmakers, cooks and waiters), the "half-seafaring" population (men that have worked three months at sea in any capacity, and fishermen by calling but of less than a year so employed), and other suitable people of the country (mainly harbor, river and inland water boatmen, longshoremen, firemen, machinists, mechanics), shall be liable for service in the navy. Besides these, volunteers come from all over the Empire to become engineers, warrant and petty officers. In addition, men are sometimes transferred, in petty officer ratings, from the general service to the torpedo service, but there is no transfer back the other way. Once in the torpedo service, a man stays there unless he becomes disqualified, in which case he is passed into the reserve, the "substitute reserve," or out altogether. The men wear an identifying mark on the cap, in addition to the ordinary cap ribbons. It is a favorite service, enjoying considerable distinction.

The commissioned officers, comprising line, engineer, medical and pay officers, belong to the general service. It is almost invariable that a line officer must serve in a big ship or scout cruiser between two periods of torpedo-boat service. The personnel authorities are very particular to maintain a proper balance in an officer's training, so that there may be no excessive development in a specialty, at the expense of sufficient experience of the general service, which all specialties serve.

On the other hand, the efficiency of officers' duty in the torpedo service is insured by always requiring previous service in a lower position before appointing an officer to a higher responsibility. Line officers begin as ensigns or junior lieutenants, in subordinate positions in the boats. Usually none come to command until after two tours in subordinate capacities. In the majority of cases, the captain of a torpedo-boat has before been an executive of a boat. Similarly, "Half-Flotilla Chiefs" are selected from those who have made a cruise as boat captains; and the *flotilla* chiefs, lieutenant commanders, are picked from the *half*-flotilla chiefs.

Warrant officers play a considerable rôle on board torpedo-boats. Among these are "torpedo quartermasters," ranking with warrant and chief warrant officers, and having the navigational qualifications of a mate in the merchant service. Normally, there are enough line officers and warrant officers below the captain of a boat to maintain a regular watch in four.

Two specialties, in effect, are recognized as distinct among line officers in connection with torpedoes—torpedo-boating and torpedo duty in ships. Officers specializing in the one do not as a rule take duty in the other, the work being entirely different and attracting different natures. Torpedo-boating is liked because of the comparative independence, opportunity and various activities which it gives, appealing to the sporting instinct; while ship's torpedo duty attracts the more technically inclined, offering inducements like those of the gunnery specialty, though in less degree. Torpedo-boat officers, in common with all, take the torpedo training course as midshipmen. Every torpedo-boat captain has taken a further course and done torpedo firing, to gain and maintain his "*T*," and the junior lieutenant subordinates also, with rare exceptions, have the "*T*" qualification.

The warrant and petty officers in the torpedo-boats are torpedo specialists. They have the station of "tubemaster," and maintain

their qualifications as jealously as the pointer of a heavy gun. The tubemasters are also the gun captain pointers of the torpedo-boat's battery.

TORPEDO-BOAT FLOTILLA TRAINING

The training routine in the torpedo service covers three years, corresponding to the normal term of required military service. Most recruits enter October 1 and are first put through a preliminary six weeks of general military training. This training corresponds to that of our naval training stations, but is more thorough and accomplishes as much in six weeks as ours does in four months. At the beginning they are handled in squads of eight. For its first year of the three-year cycle a flotilla is designated "school" flotilla. Officers as well as most of the men are then new to the boats, some of them being new to the torpedo service altogether.

The officers' training also is elementary in torpedo-boat work. For this the school torpedo-boats serve under the "reserve" half-flotillas. As soon as the new torpedo-boat captain has his boat in hand, an experienced boat of one of the other flotillas goes out with him to train the new boat to maneuver in a pair. Next the half-flotilla chief takes all his five and trains them to work together.

Training with the fleet begins late in November running into December. The boats have opportunity for night work against vessels outside. In the early spring, the school flotillas and the "maneuver" flotillas (which were "school" flotillas the year before) are taken out as a body by the admiral Inspector of Torpedo Affairs, for training in company with a special squadron, which is formed of the torpedo training and experiment ships, the gunnery school ships, and the reserve stem ships, altogether four or five large vessels and three or four scout cruisers. This part of the training covers about three weeks. It includes a great deal of night work, the aim being to train the boats to search for the heavy force and attack it in numbers. In the early summer, this kind of training is continued and carried farther with the high sea fleet itself, during a two or three weeks' maneuver period. In July, the school flotilla takes a coastwise cruise; and in the autumn, from mid-August, for about three weeks, takes

part, with all other available naval force, in the fleet autumn maneuvers.

After one year as *school* flotilla, the designation is changed to "*maneuver* flotilla." This second year the boats are not placed in full commission immediately after October 1, but the exercise necessary to maintain the efficiency of the specialists is had on board the one boat of the half-flotilla which is in full commission, or in a school torpedo-boat, or by taking a boat in reserve itself out in a reserve commission status. The essential difference is mainly fiscal, there being allowances and extra pay, and the crew's subsistence allowance being greater when a vessel is in full commission, which do not apply to a vessel in reserve or otherwise in a qualified condition of commission. In November and December and all through the winter, after the Christmas holidays, the maneuver flotillas in full commission practice with and against the squadrons of the fleet, and with the full fleet, battleships and cruisers, when the commander-in-chief takes them out.

When in full commission, the maneuver flotillas are under the commander-in-chief, as constituent parts of the fleet. These, and also other flotillas, joined to the fleet for longer or shorter periods, are for the time being detached from any control by the Torpedo Inspection. The fleet admiral, however, has no concern with their interior details. He deals with them as instruments furnished ready for his use, fully trained as far as training can be carried apart from the full fleet. So with all the flotillas. When they are not with his flag, he does not concern himself with them, nor is he responsible, as they belong to another. They pass from the fleet directly back to the control of the Torpedo Inspection, which is more thoroughly familiar with their requirements than the commander-in-chief could possibly be, more interested, and not concerned with any other branch.

As already mentioned, the maneuver and school flotillas exercise with the special squadron in the early spring, and again with the fleet in the early summer. Like the school flotillas, the maneuver flotilla also takes a summer cruise and participates in the autumn maneuvers.

At the end of the second year, the *maneuver* flotilla becomes the "*reserve flotilla*" for the third year. Specialists have the school torpedo-boats available to keep their hands in—firing torpedoes and guns to maintain their tubemaster and gunleader

qualifications. The reserve boats are sometimes "activated" in the early spring for practice, but usually they remain in reserve until two or three weeks before the autumn maneuvers begin. In the latter part of July, they are put in commission for the necessary shakedown periods, so that in the autumn maneuvers they, as well as the school and maneuver flotillas, may be well in hand.

Shortage of officers a few years ago made it necessary to take for these boats, for the summer, officers who had paramount duty elsewhere during the rest of the year, as at the Naval Academy and War College. Some of these officers were captains of boats. As far as boat captains are concerned, this practice no longer continues, but some of the officers have other duties to occupy them during the reserve periods of their boats, though there was very little of this by May, 1914.

The training cycle is completed with the end of the third year, and these boats are turned over to begin again as the next school flotilla. Seamen and stokers are paid off, but since all petty officers must be men of extended enlistments, there remains a considerable nucleus with which to begin the next three-year period—school, maneuver, reserve.

This three-year cycle has shown itself well adapted for increasing the number of torpedo vessels, as far as concerns organization. Prior to 1906 there were only three flotillas in the German Navy altogether, each torpedo division having one school, one maneuver and one reserve, *half*-flotilla. The half-flotillas from the first division at Kiel combined with those of the second division at Wilhelmshaven to make one flotilla each—school, maneuver and reserve. In the autumn of 1906, each division organized *two* school half-flotillas instead of one, so that a year later, in 1907, there were two maneuver flotillas instead of one. The same could have been done the next year, but was postponed another year, probably for lack of sufficient boats and of disposable funds, there being other large increases in the navy budget at that time. But in 1908 and 1910 similar increases were made. so that in five years the torpedo-boat force doubled. A similar increase began in 1913, which accounts for there being in 1914 seven flotillas instead of six. The second torpedo division had two *school* flotillas instead of one, and in ordinary course would have had two maneuver flotillas in 1915.

SUMMARY OF TRAINING PROGRAM

	1st Year School flotilla	2d Year Maneuver flotilla	3d Year Reserve flotilla
October to mid-November.	Preliminary military training; boats in reserve.	Similar to previous year, but more advanced—in reserve.	Single boat work, or work in "school" torpedo boats, to maintain specialist qualifications.
3 to 4 weeks from mid-November.	Preliminary work, boats in reserve commission.	Half-flotillas train with "Scouting Ship Squadron."	
After the holidays to end of March.	Boats training in pairs and in half-flotillas.	Single boat training; and 2 weeks in half-flotillas with scouting squadron.	Sometimes in active full commission for 2 weeks.
3 weeks in March and April.	Half-flotillas in full commission train with a squadron of special ships under admiral inspector of torpedo affairs.		
Next 6 weeks..	Reserve; rest, restoration, exercise of single boats, and specialist training.		Single boat work for specialists.
2 or 3 weeks, end of May into June.	Half-flotillas exercise with full fleet.		
Next 4 weeks..	Rest, leave, and minor refit.		
Next 6 weeks..	Coastwise cruise, prepare for autumn maneuvers.		
			Put in full commission end of July, to shake down.
About August 20 into September, 14-18 days.	Autumn maneuvers, war conditions.		Autumn maneuvers.
Rest of September.	Complete unfinished firings, torpedo runs, etc.; go into reserve.		Goes out of commission.
October 1.....	Becomes maneuver flotilla.	Becomes reserve flotilla.	Becomes the new school flotilla.

A very notable factor in the efficiency of the German torpedo training is the great proportion of it that is done at night. Very few torpedoes are fired by day, but at night a great many. A flotilla may average 1500 torpedo runs in a year. The loss of a torpedo is rare and is a serious mishap, difficult for an officer to explain away. There can be no question of the exceptionally reliable state of material preparedness, nor of the devoted, confident spirit among officers and men and the cordiality of their mutual confidence and esteem.

TORPEDO SERVICE MATERIAL

The complete control which the Torpedo Inspection has over the design, building and acceptance trials of torpedo-boats has given results very satisfactory to the torpedo service. The Navy Office has nothing to do with questions of design, except in so far as the Secretary has cognizance of all technical matters. The Torpedo Inspection has its own hull and machinery constructors for designing, building inspection and service tests. Thoughtful development is evident from the absence of radical departures or changes. They have refrained from going to a large destroyer type, evidently believing that for operations in the North Sea their smaller type is more efficient. With the choice all in their own hands, they must have what they most want. Confirmation of this conclusion comes from outside. In 1913 the *English Naval and Military Record* published some comment on the German torpedo service, in which the seaworthy qualities of their torpedo-boats were highly praised.

As to general upkeep, the efficiency of material in the torpedo service is due to its necessities being fully appreciated and adequately provided for. In Kiel and at Wilhelmshaven, the great naval bases, the dockyard contains a "Torpedo Resort," which is practically a complete dockyard for torpedo vessels within the great dockyard. The head of the resort is a commander, with a lieutenant as assistant, and a staff of three torpedo engineers, eight torpedoist lieutenants, three naval constructors and three machinery constructors. The plant of the torpedo resort contains boiler shop, machine shop, rolling and bending shed, foundry, smithy, ship fitter's shop, pattern, joiner, coppersmith, plumber and paint shops and complete store-houses for the full outfit of a torpedo-boat, besides cranes, floating docks and berthing slips

for torpedo vessels. The new torpedo resort, recently completed at Wihlelmshaven, covers an area larger than the Pensacola navy yard, and employs 3000 workmen. At Kiel it is not so large, but is no less complete. The idea of having this separate establishment is that torpedo work is sure to suffer if it is mixed with work for big ships; therefore, the torpedo work is done apart, in a place and by people intended for that work and that alone, so that it is possible for a torpedo vessel needing repairs, or going into commission, to receive the prompt, competent and *undivided* attention of a thoroughly equipped, technical establishment of adequate capacity. By this arrangement not only satisfactory upkeep can be assured, but also repairs or replacements of damaged vessels accomplished in a minimum of time. It has been a common occurrence for a boat damaged by collision in maneuvers to be repaired and sent back again within 24 hours or less. And with the reserve boats at hand, all their equipment arranged conveniently and orderly in storehouses adjacent to the berthing slips, a boat too damaged for immediate repair can, in still less time, be replaced altogether. The commander director of the torpedo resort, having an adequate, competent and experienced staff, and authority to decide in the matter, need usually lose no time in referring for decision to the director of the larger, parent dockyard, whose attention must comprehend also other affairs.

For the torpedo supply, the Inspection has a factory at Friedrichsort, near Kiel, under a captain as director, with a lieutenant commander as assistant and a staff of 21 torpedo engineers and 11 torpedoists, having rank of from ensign up to lieutenant commander. The personnel of this factory are men trained from the beginning under the Torpedo Inspection, sworn to secrecy at the outset. Here are manufactured all the torpedoes used by the navy and some parts also of the mines. The establishment has a trial range of about 4000 yards, with retriever boats, and a very complete equipment.

In connection with torpedo supply, improvement and development, testing ships' installations, and training of ships' torpedo crews, there is a "Torpedo Trial Detachment," or board, with a captain as president, one lieutenant commander, and four lieutenants as members, six junior lieutenants as assistants, three torpedo engineers and a physicist. These officers, with others necessary, constitute also the complement of an armored cruiser

which is regularly assigned as the torpedo experiment ship. In addition, two scout cruisers are regularly assigned, to try out torpedoes and help train ships' torpedo men. These three vessels do not belong to the fleet, but are otherwise in regular commission and keep in readiness for their designated duty upon mobilization. In the spring they form part of the special squadron organized under the torpedo inspection admiral, to train the torpedo-boat flotillas.

SHIPS' TORPEDO CREWS

For vessels carrying underwater torpedo-tubes—battleships, battle cruisers, and scouts, the Torpedo Trial Board, with experienced torpedo men, conduct the full series of trials of torpedo installation and outfit of torpedoes, either in the case of a new ship or of renovation or material alteration of the torpedo installation. When the installation has stood the tests and been accepted, it is turned over to the ship's torpedo section, which has been trained and furnished by the I or II torpedo division, according to whether the ship belongs to the Kiel or the Wilhelmshaven dockyard. This method, whereby every installation is first tested by the best service experts and then turned over to a crew trained under the same guidance, goes far to eliminate uncertainty, in case of subsequent inefficient performance, as to whether the fault were of personnel or of material. It offers the best prospect for reliable efficiency, surely.

For training officers and men for torpedo duty on board ships, an old battleship is used as torpedo training ship, where midshipmen, officers and torpedo petty officers take courses to fit them for torpedo duties. To be a ship's torpedo officer, a six weeks' course as midshipman and a subsequent higher course, are necessary, giving the "*T*" qualification against an officer's name. If not employed with torpedoes and successful in a torpedo firing course, this qualification lapses after two years, unless renewed by a review course in the torpedo training ship.

Battleships and large cruisers carry a lieutenant (senior grade usually) as torpedo officer, and an ensign as assistant torpedo officer. In the normal case, the torpedo officer will have been an assistant torpedo officer previously. Scout cruisers carry a junior lieutenant as torpedo officer. Each of the vessels carries a warrant or chief warrant "Torpedo Machinist."

SUMMARY OF THE TORPEDO INSPECTION ORGANIZATION

INSPECTOR, REAR ADMIRAL, HEADQUARTERS AND STAFF AT KIEL

Trained personnel supply	Torpedo trial detachment	Torpedo training ships	Supply of boats	Torpedo factory	Torpedo resort of dockyards
I Torpedo division, Kiel II Torpedo division, Wilhelmshaven Under each one, 3 or 4 battalions, comprising 6 or 8 reserve half-flotillas, furnishing complements for 6 or 8 half-flotillas in full commission; furnishing also *stems* for the formation of more half-flotillas. The torpedo divisions also furnish and partly train torpedo men for ships.	Tests torpedoes and ships' torpedo installations; conducts experiments. Train torpedo crews for ships. Give training in radiotelegraphy to officers and men.	Train midshipmen, officers and men in the care, handling, and firing of torpedoes.	Hull and machinery constructors of the torpedo inspection staff, together with the Torpedo Acceptance Commission, secure satisfactory boats.	Maintains supply of torpedoes and explosives; trains its own workers and contributes to the training of all torpedo engineers.	Not under the torpedo inspection, but they exist solely for the maintenance of torpedo-boats in serviceable condition. They are in all respects complete dock and supply yards for torpedo vessels.

THE SUBMARINE BRANCH

The submarine service was first organized as a sub-division of the torpedo inspection, but has now become a separate "Inspection of Submarine Affairs," with seat at Kiel, and the following organization, which, as can be seen, runs along similar lines to those of the parent inspection. The following is taken from the Navy List of May, 1914:

INSPECTION OF SUBMARINE AFFAIRS

Inspector	A captain.
Adjutants	3 lieutenants.
Inspecting engineer	A naval engineer (lieutenant).
Inspecting medical officer	A medical inspector.
Inspecting pay officer	A paymaster.
Naval constructors	Four.
Machinery constructors	Four.
At disposition	5 lieutenants and ensigns. 2 naval engineers.

BOARD FOR TRIAL AND ACCEPTANCE OF SUBMARINES

A lieutenant.
A naval engineer.
2 navigating boatswains.
4 machinists (warrant).

SUBMARINE BATTALION

Commandant	A lieutenant commander.
Adjutant	A lieutenant.

Furnishes the flotillas and their stem organizations.

SUBMARINE FLOTILLAS

In the spring of 1914 the Navy List showed two.

FLOTILLA CHIEFS

2 lieutenant commanders, each having as flag lieutenant or aid, a lieutenant

LEADER-BOAT COMMANDANTS, WHO ARE ALSO HALF-FLOTILLA CHIEFS

4 lieutenants.

SUBMARINE-BOAT COMMANDANTS

20 lieutenants.
12 lieutenants (j. g.).

OTHER SUBMARINE-BOAT OFFICERS

28 lieutenants (j. g.) and ensigns.
37 naval engineers.
2 medical officers.
4 pay officers.

WARRANT AND CHIEF WARRANT OFFICERS

The Navy Register bears, on lists expressly designated for submarine duty, the following:

	On shore duty		In the submarine flotillas	Total
	With submarine battalion	Elsewhere		
Chief warrant quartermasters or navigating boatswains....	.....	.....	8	8
Warrant quartermasters or navigating boatswains.....	1	2	12	15
Chief machinists.....	5	.....	9	14
Machinists.....	10	5	15	30

Duty "elsewhere" was with the Submarine-Boat Acceptance Commission, except for one machinist, who was with the I artificer personnel depot.

FLOTILLA SHIP OF I SUBMARINE FLOTILLA

Hamburg

Scout cruiser, 1903, 3250 tons, 23 knots on trial, ten 4-inch guns.
1 lieutenant commander, 6 lieutenants, 1 engineer, 1 doctor, 1 paymaster.

FLOTILLA SHIP OF II SUBMARINE FLOTILLA

Stettin

Scout cruiser, 1907, 3470 tons, 25 knots on trial, ten 4-inch guns.
1 lieutenant commander, 7 lieutenants, 1 engineer, 1 doctor, 1 paymaster.

Special Type Ship Vulcan, Submarine-Boat School

Commandant, a lieutenant commander, who is also the head of the submarine-boat school; 2 lieutenants, 1 engineer, 1 doctor, 1 paymaster.

This ship is a double-hull type, with two heavy hoisting purchases over the well between. The berthing space is ample for the accommodation of submarine crews under training, four at a time.

Few particulars concerning submarine-boats are accessible. Early in 1914, 27 were ready for service. From the outset a long continuous run, of 300 up to 700 miles, unaccompanied, was a prerequisite to acceptance. Their training program is not known, but there are indications that it follows that of the torpedo-boat flotillas. A great part of the year, only one flotilla ship was in full commission. The second was activated in the summer, for participation in the autumn maneuvers.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE TRADITIONS OF THE NAVAL SERVICE

By LIEUTENANT (J. G.) H. H. FROST, U. S. Navy

Motto: The memory of a great age is the most precious treasure that a nation can possess.—CONAN DOYLE.

I. THE IMPORTANCE OF TRADITION IN A MILITARY SERVICE

1. Our first great naval commander, Paul Jones, recognized the great importance of a naval tradition. His great object was always not merely to gain material results, but to break the tradition and prestige of Great Britain and to commence a great tradition for our own service. He expresses his object as follows: "Beyond this, if by exceedingly desperate fighting, one of our ships shall conquer one of theirs of markedly superior force, we shall be hailed as a new power on the seas with untold prospects of development, and the prestige if not the substance of English dominion over the ocean will be forever broken. Happy indeed will be the lot of the American captain upon whom fortune will confer the honor of fighting that battle."

2. It is evident that a great tradition will greatly increase our confidence in victory and reduce that of the enemy. But this confidence, which may easily pass into overconfidence, is not the only advantage of a great tradition. It may be used in another way so as to greatly increase the efficiency of a military service. In a service which has a great tradition, each officer should and usually does feel that it is not enough for him to show average ability, it is not enough for him to accomplish ordinary results, because, in order to continue the honorable record of his service and in order to gain for himself a position among its great figures, he must display the greatest ability and gain the greatest possible results. Thus such a tradition should and usually does inspire every member of the service to be worthy of its great traditions,

to imitate or surpass the deeds of its dead heroes, to be worthy of all those who have given their services, their blood and their lives to their country. When such a spirit is kept alive in a service we may be sure that this service will always keep its honor bright and gain the greatest possible success.

3. For a naval service to win the greatest results in war, its officers must diligently and skillfully prepare it for war. Each officer must prepare himself for the time when he will engage in battle. He must prepare his men, seeing that they gain the greatest possible skill and that they act with a proper spirit of discipline, courage and initiative.

4. When war commences it is then the duty of each officer to use the force under his command with the greatest skill and courage. He must first decide when and how to strike the enemy and must then carry out his decision with resolution and courage.

5. We may then say that a service has a great tradition when its past history shows numerous and continuous examples of:

1st. Diligent and skillful preparation of both the material and personnel.

2d. Skillful and courageous actions in actual war.

6. Each nation has had its great age and its great heroes and we may say that the rise and fall of nations depends upon the degree with which they have kept alive the spirit of this age and of these great men. When its citizens live up to the traditions of these days, the nation continues strong and healthy; when these traditions are forgotten the nation falls back from the first rank of the great nations and soon falls before its stronger and more healthy competitors.

7. Let us examine the great traditions of several great military services, the ways they were built up by great men, and the great results gained as long as they were kept alive and governed the actions of the leaders of these services.

II. THE TRADITION OF THE SWEDISH ARMY

1. Gustavus Adolphus at the age of seventeen became King of Sweden. The nation, due to the efforts of his father and his grandfather, the great Gustavus Vasa, was in a fairly efficient condition. Being threatened by a powerful combination of Denmark, Russia and Poland, he first carried out a fairly successful

campaign against the most dangerous enemy, Denmark, and arranged a separate peace with this nation. Then, his country being in no immediate danger, he commenced a most careful and thorough reorganization of the whole nation and especially of the army, which was to begin the great tradition of this service and make the Swedish soldier for a century the most efficient in all Europe.

2. First, the material and equipment of the army was greatly improved. The artillery was improved by the invention and supply of light portable cannon. Muskets were provided for nearly all the infantry at a time when a large proportion of all the other European infantry were armed with pikes, in most cases an inferior weapon. Uniforms were provided for all the men.

3. Second, the personnel was in every way improved. The conditions under which the officers and men served were improved, and every one received his pay, which to be sure was small, regularly. The regiments were carefully drilled, the discipline was increased and their moral power improved.

4. Third, the organization of the whole army was carefully arranged. The regiments were combined into brigades, and brigades of infantry were assembled with cavalry and artillery to form divisions. New tactics for infantry and artillery were developed, and the officers were carefully educated in strategy and tactics.

5. Fourth, and most important, the whole army was actually trained in war, and the entire system was thoroughly tested out in the minor wars which Gustavus carried on almost continually with Poland and Russia. This tradition of thorough preparation for war, founded by Gustavus, was kept alive for a century by his successors and made the Swedish soldier the best in Europe.

6. Having in this way most carefully prepared his army, Gustavus commenced a brilliant campaign in Germany in the Protestant cause against the Emperor. He commenced by methodically winning and securing a base in Northern Germany, refusing to be drawn into the interior until all preparations were made. When these were completed he commenced a brilliant offensive. Tilly was overthrown at Breitenfeld and Gustavus attacked Wallenstein at Alte Veste with the greatest audacity and determination (although he was here finally repulsed) and finally

destroyed the Imperial army at Lutzen in one of the hardest battles ever fought. Here, when victory was decided and the campaign won, he was killed upon the field of battle. In this campaign in Germany Gustavus showed the greatest skill in leading his army, and combined perfectly discretion and audacity, and left to his successors a perfect example to follow, and a wonderful military tradition.

7. This great tradition of Gustavus lived for nearly a century. The great statesman Axel Oxenstierna carried out his policies, and the generals, trained by Gustavus-Baner, Torstenson, Wrangel and many others of lesser ability, with the assistance of the fine Swedish infantry, won repeated victories in Germany until the close of the Thirty Years War. King Charles Gustavus, "a great and mighty man, Lion of the North in his time, an imperious, stern-browed, swift-striking man" (Carlyle) defeated the Poles in the great battle of Warsaw, and made a most remarkable invasion of Denmark, crossing thirteen miles of ice, with open water in places, with an army of 20,000 men, including cavalry and artillery. Finally King Charles XII by his skill and audacity won repeated successes, but forgetting the discretion and patience of the great Gustavus, he was finally completely defeated. After his death the Swedish army declined, the old tradition was forgotten, and Sweden dropped to the rank of the second rate powers.

III. THE DUTCH NAVAL TRADITION

1. The Dutch Navy was founded during the wars of independence. In these wars the Dutch, being naturally fine sailors, animated by an intense hatred of their cruel oppressors, won on the sea repeated victories over immensely superior Spanish fleets. When independence was once won and the Dutch had built up a great ocean trade, De Witt, assisted by the great admirals Tromp and De Ruyter, brought the Dutch Navy to a remarkable state of efficiency. The Spaniards were beaten with the greatest ease. In the great struggle with Great Britain for the supremacy of the seas, the Dutch sailor, all things considered, proved himself slightly superior to the British. In these wars Tromp was noted for his great fighting spirit and aggressive courage. De Ruyter, who had always to contend against superior numbers, saw that something more than courage was needed. He therefore trained

his superior officers until they became very skillful in battle tactics and he introduced into the crews a perfect discipline. Having by his fine character inspired the loyalty of his captains, he generously allowed them great initiative in making tactical decisions. With his well trained fleet he won many notable victories and was held as the greatest admiral of his day. Yet, although he fought with the greatest skill and aggressive courage, and was finely supported by his subordinates, he was never able to gain a really decisive victory over the superior forces which the strong British Navy brought against him. Shortly after the last English war, De Ruyter was killed and De Witt assassinated, and the spirit of these great leaders being forgotten, Holland sank from her commanding position as the leading power of Europe.

2. Perhaps some day, if the Swedes and the Dutch can bring back the memory of these great ages of their history, their nations may regain the positions they once held among the European powers.

IV. THE TRADITION OF THE FRENCH ARMY

1. While the French soldier has always had a fine reputation, and under the great generals Turenne and Conde won great campaigns, it was not until the French Revolution that their great age begins. At the beginning of the revolution, the army was composed of inefficient mercenaries. This army was completely disbanded. The Republican armies, at first a mere rabble without training and discipline, inspired by Danton's noble words, "De l'audace, et encore de l'audace et tousjours de l'audace," by pure spontaneous enthusiasm beat off the hostile armies on all sides and carried the war into the enemy's country. "Such a fire is in these Gallic republican men; high-blazing; which no coalition can withstand! Not scutcheons, with four degrees of nobility, but ci-devant sergeants, who have had to clutch generalship out of a cannon's throat, a Pichegru, a Jourdan, a Hoche lead them on. They have bread; they have iron; 'with bread and iron you can get to China.' See Pichegru's soldiers, this hard winter, in their straw-roped shoes and cloaks of bast-mat, how they overrun Holland, like a demon host, the ice having bridged all waters, and run shouting from victory to victory" (Carlyle).

2. When this great fighting army found a bold and skillful leader in Napoleon it was for the time invincible. The military tradition developed by Napoleon was to carefully prepare the greatest possible force, to act always upon the offensive, to skillfully maneuvêr so as to force the enemy into a bad position, to attack him with the greatest possible force until a decision was obtained, and then to push the pursuit until his army was completely destroyed. Unfortunately the Napoleonic tradition contained the idea that the army was to be controlled by one man, who, in addition to deciding the main features of the campaign, was to control everything down to the smallest detail. Napoleon won remarkable successes until his own lack of discretion brought against him superior numbers. Even here he might have won had not France become tired of war or could he have induced his soldiers to "pull on the boots and the resolution of 1793." After his fall from power, both the Republican and Napoleonic traditions were stamped out by the Bourbons. When Napoleon III became Emperor he tried by every possible means to revive the Napoleonic tradition, but failed because he could not play its leading role. After he had fallen, Gambetta tried to revive the Republican tradition, but under the circumstances he could hardly have hoped for success against the great Prussian system. Something more than courage and enthusiasm were needed here. While the Republican and Napoleonic traditions have achieved great results in the past, these results were won under very special circumstances. To-day the enthusiasm of the people cannot of itself win the victory as it did in the days of the Revolution, nor can France wait for another Napoleon. It must look for a new tradition.

V. THE PRUSSIAN MILITARY TRADITION

1. In Prussia, King Friedrich Wilhelm and his son, the Great King, founded a great tradition, but as it depended upon an army of foreign mercenaries who required a great leader, such as Frederick the Great, to command them, and as it was based largely upon a defensive strategy, forced upon Frederick by his great inferiority in numbers and resources, it can hardly be used under the present conditions. It is true that at the time of the disaster of Jena, Frederick's spirit was dead and merely the form of his

operations remembered, but still a nation to-day cannot build up a mercenary army, cannot wait for a great leader and cannot habitually employ defensive strategy.

2. After the disaster of Jena and Auerstadt, Scharnhorst commenced the reorganization of the defeated Prussian army. He founded a war college for the instruction of the higher officers in strategy and tactics; he perfected the organization of the army for use in the field; he trained and disciplined the personnel; he organized all able-bodied citizens into the reserve or Landwehr, which were to be called to the colors in war; he improved the material and assembled great quantities of munitions. At the outbreak of the War of Independence he died from a wound received in one of the first battles, thus unfortunately failing to add to his reputation as an organizer the fame of successfully conducting the operations of an army in war. Blucher, with Gneisenau and Muffling as assistants, completed the Prussian tradition by skillfully and courageously directing the movements of the army in war. "Personal bravery, which encouraged the most timid around him, without fear of responsibility, an indestructible energy, and a great deal of stubbornness, were Blucher's main traits. To plan the attack—which Blucher never failed to insist upon making—was the duty of his friend Gneisenau, while Muffling worked out the details" (Prince Hohenlohe). The tradition of Scharnhorst, Blucher, and of the entire Prussian army in that war has never been allowed to die out in the Prussian service.

3. The night before the battle of Sedan, the German Meuse army, after a long series of marches, in which one-third of its men had fallen out through exhaustion, had gained a position in accordance with its instructions which would prevent the escape of the French Army to the eastward. Permission had been requested from the Supreme Command to rest the following day. The orders for the Third German Army, which was for the time grouped with the Meuse Army for the Sedan Campaign, for the following day were to cut off the French Army's retreat to the westward. At 1 a. m. the Commander of the Meuse Army received information from the Commander of the Third Army that in addition to cutting off the enemy's retreat on the following day, he would attack him with his whole force. He requested that the Meuse Army assist him in this attack. "Many a leader would

have thought: 'If he wants to attack, that is his own lookout. I have occupied my position as directed. My army wants a day of rest; I have asked for it, and I am going to wait for a reply. I will not ruin my army by such rashness and I shall not attack on the 1st September unless ordered to do so.' History teaches us that this would have been human nature. Did not Archduke John of Austria leave his brother in the lurch at Wagram? How did Bernadotte behave at Grossbeeren, Dennewitz and Leipsic? Did Wellington assist the Prussian Army at Ligny? But what about Blucher two days later at Waterloo? you will say. That is just what I am driving at. The spirit of Blucher was not allowed to die out among the Germans, and this won the victory at Sedan" (Prince Hohenlohe).

4. To this tradition of the Wars of Independence was added the principle of universal service, the formation of the General Staff and of an excellent system of command, the principal features of which are the development of a proper loyalty of the subordinate leaders toward each other and their superiors and the granting of great initiative to the subordinates. General Von Moltke personifies this great tradition of the German Imperial Army.

VI. THE TRADITION OF THE BRITISH NAVY

1. Admiral Edward Hawke was really the founder of the British Naval tradition. It is true that before him the British Navy had made a very creditable record in the wars with Spain, Holland and France and that it could boast several great admirals—Drake, Hawkins, Howard, Blake and Monk—who had carried on great campaigns with success. However, in these days the British Navy did not hold that position of unquestioned supremacy, which it gained in later years. Its record was slightly inferior to that of the Dutch Navy under its great admirals, Tromp and De Ruyter, and only slightly superior to that of the French under Tourville. Indeed, after the decline of the Dutch Navy, after the War of 1673, and of the French Navy after the defeat of Tourville at La Hougue in 1692, the British service, having no longer worthy competitors, declined into a state of general inefficiency, as was so well shown by Matthew's action off Toulon in 1744 and Byng's action at Minorca. It was Hawke who lifted the British service from this state of general inefficiency and inspired it with a new aggressive fighting spirit.

2. It was in Matthew's action off Toulon that Hawke first showed the advantage of the fighting spirit with which he was to inspire his service. In this action the flag officers and captains, almost without exception, displayed so little skill and courage that but one Spanish ship was captured. Indeed, one flag officer kept his whole division out of the action through ill-will toward the commander in chief, and a great number of the captains timidly kept at such a long range that their fire could have little effect, and failed utterly to support those few ships which properly came to close action. Hawke was convinced, that to strike effectively, he must come to close quarters. With great courage he ran in to close range, almost entirely without the support of the other British ships. Having driven from the line the first ship he engaged, he immediately ran alongside a second ship and captured it. This was the only prize of the day. This spirit of coming to close quarters and of pushing the fighting until no more injury could be inflicted upon the enemy, as displayed in this action by Hawke, was one which was always after kept alive in the British service, and which has been responsible for many of their most brilliant victories.

3. In 1747, while in command of the Western Squadron of twelve ships, Hawke fell in with a French squadron of eight ships, which were slightly superior, ship for ship, to his own. Hawke realized the necessity of striking quickly, and as he was so superior in numbers, he saw that it would not be necessary for him to form column and to deliver a skillful attack. An advance to the front with all his forces with the greatest speed would give the best results and therefore Hawke immediately ordered a general chase. Six out of the eight French ships were taken and every effort was made to reach the other two ships, which, however, finally succeeded in escaping after a sharp running fight. The bold and skillful action of the captains showed that Hawke had succeeded in inspiring them with his own fighting spirit. All save one captain made every effort to close the enemy and to force a definite decision.

4. In 1757 Hawke took command of the Channel Fleet. He originated the great strategic principle of the close blockade of the French coast, which aimed at nothing less than completely driving from the seas the French fleets and of holding them continually

in port. The British fleets, keeping the sea throughout the entire year and in all sorts of weather, were greatly improved in every way. The personnel was made healthy, strong and skillful in their long struggle with the winter storms. As the material naturally suffered greatly in these campaigns, and as in some cases the health of the crews suffered from overexertion, Hawke developed the material to the highest possible degree, made it possible for the ships to be rapidly repaired and docked, and improved the medical service throughout the fleet. The officers were inspired with an aggressive and daring spirit and were eager to force a decision upon the enemy, so as to bring to a close their long and weary watch off the French coast.

5. In 1759 an attempt to unite two divisions of the French Navy so as to prepare the way for the invasion of England resulted in one of these divisions, which was composed of twenty-one ships under Admiral Conflans, falling in with Hawke's squadron of twenty-three ships. Conflans made for Quiberon Bay, believing that Hawke would not dare to follow him. Hawke, however, seeing a chance to break up the French fleet, "crowded after him (Conflans) with every sail our ships could bear."[1] The two leading British ships attacked the French rear, just as the French van was entering the bay. Hawke was without a pilot and reliable charts; darkness was coming on and a gale was blowing. Therefore his sailing master protested against his entering the bay, but Hawke said: "You have done your duty in warning me, now lay us alongside the French commander in chief."[1] While fully realizing the great risk he was taking, Hawke saw the necessity he "was under of running all risks to break this strong force of the enemy."[1] The attack was made with the greatest resolution as Hawke and his captains were "for the old kind of fighting, to make downright work with them."[1] Hawke aimed at nothing less than the complete destruction of the French fleet. "Had we but two more hours of daylight, the whole had been totally destroyed or taken."[1] At nightfall both fleets were forced to anchor, the British losing two ships wrecked, and the French six ships in all, sunk, wrecked or captured. The others were split up into two divisions and were easily blockaded in port for the rest of the war. This action completely broke up the French plan to invade England

[1] Hawke's Official Report.

and proved that Hawke's aggressive spirit had been extended through the whole service. In later years Hawke expressed the principle which guided him as follows: "For God's sake, if you should be so lucky as to get sight of the enemy, get as close to them as possible. Do not let them shuffle with you by engaging at a distance, but get within musket shot if you can. This will be the means to make the action decisive." One of Hawke's captains was William Locker, who later gave Nelson his first tactical instruction. After his great successes Nelson wrote to this captain: "To you my dear friend, I owe much of my success. It was you who taught me, 'Lay a Frenchman close, and you will beat him.'" Thus did Hawke's tradition prepare the way for the great campaigns of Jervis and Nelson.

6. To the aggressive spirit of Hawke, Rodney added tactical skill in maneuvering fleets in action. Hawke, having usually superior numbers and having developed his crews so that ship for ship his fleet was far more efficient than the French, had little need for skillful maneuvering Rodney, being opposed usually by superior numbers and French admirals who were skilled in maneuvering, and lacking himself the great fighting spirit of Hawke, was forced to use his fleet with the greatest skill so as to engage the enemy under the most favorable conditions. After an important action with De Guichen, Rodney reported: "The different movements of the enemy obliged me to be very attentive and watch every opportunity of attacking them at advantage." Later he stated his guiding principle as follows: "During all the commands Lord Rodney has been entrusted with, he has made it a rule to bring his whole force against a part of the enemy's and never was so absurd as to bring ship against ship, when the enemy gave him the opportunity of acting otherwise." It was this great tactical principle, added to Hawke's fighting spirit, upon which Nelson's great tactical successes were based.

7. In addition to this tactical principle, Rodney originated a great strategical principle. This was that each commander in chief was charged with a greater duty than merely commanding the seas on his whole station, but that each should, on his own initiative render all possible assistance to the naval forces on all other stations. This principle of co-operation between commanders, he illustrated by sailing with a large part of his fleet from his

station, the West Indies, after the French force on that station had left for France, to assist the British force on the North America station. "I take the liberty to construe my instructions in such a manner as to think myself authorized and obliged to succour any of his Majesty's colonies that may be in danger." It was this principle of finding and fighting the enemy wherever he might be, and of rendering assistance to all British naval and military forces which was responsible for all the great strategical successes of the British naval service.

8. John Jervis, the next great admiral in the British service, is famous for the strict and harsh discipline he enforced in his squadrons. While he was forced to act as he did by the deplorable lack of discipline and the frequent mutinies of his crews, for which he was not responsible, this is hardly a tradition which the British service should imitate, unless the exceptional conditions among which he found himself, should be repeated in the future.

9. However, in other ways, Jervis added important features to the tradition of Hawke and Rodney. He carried out almost perfectly the close blockade originated by Hawke, and did much to increase the health and skill of his personnel. Nelson said of his Mediterranean Squadron: "They at home do not know what this fleet is capable of performing; anything and everything. The fleets of England are equal to meet the world in arms; and of all the fleets I ever saw, I never beheld one, in point of officers and men, equal to Sir John Jervis's." Jervis, in putting into effect his close blockade of the French ports, followed the principle that "our great reliance is on the vigilance and activity of our cruisers at sea, any reduction in the number of which, by applying them to guard our ports, inlets and beaches, would in my judgment, tend to our destruction."

10. In 1797 Jervis, with fifteen ships, met off Cape St. Vincent a Spanish fleet of twenty-seven ships. At this time, Bonaparte's repeated successes had astonished all Europe and Jervis saw that to offset these the British fleet must win a victory merely for moral effect. He said, when approaching the Spanish squadron, "A victory is very essential for England at this moment." Thus when the captain of the fleet remarked to him about the greatness of the odds against them, he replied: "Enough of that, Sir, if there were fifty sail, I would go through them." Jervis, seeing that the

Spanish fleet was divided into two sections, skillfully interposed his squadron between these two sections. Before the Spaniards could unite, he had captured four ships. Jervis refused to pursue his advantage, as the moral effect of the victory had already been won, and as the enemy was now united, he prudently decided not to risk the advantage he had gained in a desperate engagement with an enemy who was still greatly superior in numbers.

11. Nelson, the greatest of the British admirals, closely followed Jervis, to whom he was indebted for all his early opportunities. Nelson personifies the British naval tradition as Moltke does the German military tradition. In him we see combined the aggressive spirit of Hawke and Jervis with the skill of Rodney. Nelson's first conspicuous service was in the action between Hotham and Martin in 1795. After several days of maneuvering, a general chase was ordered. Nelson in the *Agamemnon,* with a frigate, was far in advance of the British fleet. A French ship, the *Ca Ira,* having lost in a collision her fore and main topmasts, was taken in tow by a frigate, while two ships of the line waited with her for support. Nelson, assisted by the frigate, boldly and skillfully attacked the *Ca Ira* from astern. In this action Nelson followed Hawke's tradition of closing the enemy. "It was my intention to have touched his stern before a shot was fired." After two hours fighting the *Ca Ira* was badly damaged, while the *Agamemnon* suffered few losses, but when the two supporting ships came into action, Nelson was forced to withdraw. During the night a French ship of the line took the *Ca Ira* in tow. On the following day, after a slight engagement, both of these two ships were captured, but Hotham made no further effort to press the pusuit. Nelson then went aboard the flagship "to propose to him (Admiral Hotham) leaving our two crippled ships, the two prizes and four frigates to themselves, and to pursue the enemy; but he (Hotham), much cooler than myself, said: 'we must be contented, we have done very well.' Now had we taken ten sail, and had allowed the eleventh to escape, when it would have been found possible to have got at her, I could never have called it well done."

12. In the battle of Cape St. Vincent Nelson displayed the greatest initiative and courage to take responsibility, which was all the more remarkable because the squadron was commanded by Admiral Jervis, an officer noted for his strict discipline and the

complete obedience he demanded from his subordinates. Nelson was a commodore in the third ship from the rear of the column. He readily saw that the commander in chief's plan was to keep his fleet between the two separated Spanish divisions. As the action progressed, it became evident to Nelson that, unless some immediate move was made to attack the weather Spanish division, this force would soon combine with the lee division. The only ships which could attack the weather division in time were the ships at the rear of the British column. As there was no time to exchange or receive signals from the flagship, Nelson, acting as he believed Jervis would wish him to act, quickly wore out of column and sailed into the midst of the Spanish weather ships, so delaying them that the leading British ships could close them. Four Spanish ships were taken, largely as a result of this brilliant maneuver. The initiative of subordinates, so well illustrated by Nelson on this occasion, was always insisted on by Nelson when he became a commander in chief.

13. In 1798, when Bonaparte's expeditionary force escaped from Toulon for Egypt, Jervis gave Nelson a squadron to pursue them in the Mediterannean. As soon as Nelson heard of their escape, he wrote to Jervis: "You may be assured I will fight them the moment I can reach them, be they at anchor or under sail." During the long search, which was pursued with the greatest moral courage, Nelson frequently had the captains aboard the flagship and instructed them very thoroughly in his tactical plans and discussed with them all the special situations which might occur in battle. As soon as he was assured that each was familiar with his tactical plans and as soon as he saw that, by his constant kindliness and ability as an officer, he had completely won their loyalty, he encouraged them to act boldly upon their own initiative, in every case where it would be difficult for them to reccive in time orders from the commander in chief, which would be based upon a proper knowledge of the situation. In this respect he did for the British Navy what Moltke later did for the German Army. This system of command is usually the last step toward perfection in the tradition of a military service.

14. Finally sighting the French fleet in Aboukir Bay, Nelson immediately stood down to the attack, signalling his intention to engage the van and center of the French fleet. This signal was readily understood by his captains, who obeyed it with rare skill

and initiative. Of the thirteen French ships, eleven were captured. So high did Nelson aim that even this brilliant result did not satisfy him. "I regret that one escaped, and I think, if it had pleased God that I had not been wounded, not a boat would have escaped to tell the tale." The statement by Lord Howe that this action "was unparalleled in this respect, that every captain distinguished himself" proves the great results of Nelson's training.

15. In 1801 Nelson served as second in command of the squadron operating in the Baltic against Sweden, Denmark and Russia. In discussing the attack upon Denmark, he writes: "The more I have reflected, the more I am confirmed in opinion, that not a moment should be lost in attacking the enemy; they will every day and hour be stronger. The only consideration in my mind is how to get at them with the least risk to our ships. The measure may be thought bold, but I am of opinion that the boldest measures are the safest, and our country demands a most vigorous exertion of her force, directed with judgment." In the battle of Copenhagen, when ordered by the commander in chief to leave off action, Nelson, realizing that to attempt to withdraw at such a critical moment would certainly result in disaster, as the line of retreat was covered by strong batteries, as yet uninjured, continued the action with great initiative and courage, and by a clever stratagem decided the battle in his favor.

16. In 1803 Nelson was given the command of the Mediterranean Squadron. While blockading a French fleet in Toulon, he most carefully drilled the personnel and trained the captains to act with the greatest initiative, just as he had during the long search for the French fleet before the battle of the Nile. "We must all, in our several stations, exert ourselves to the utmost and not be nonsensical in saying, 'I have an order for this, that and the other,' if the King's service clearly marks what ought to be done. I am well convinced of your zeal." Nelson's administration of the fleet was so perfect that for twenty-two months it never went into any port other than an open roadstead in a neutral country, and was always "complete in their provisions and stores to near five months, and in a perfect state of readiness to act as the exigency of the moment may determine."

17. Finally in 1805 the Toulon fleet escaped to the West Indies, and being followed by Nelson's inferior fleet, turned back to Europe to carry out Napoleon's great combination for the invasion

of England. In Nelson's chase back to Europe, he made the following statement to his captains: "I had made up my mind to great sacrifices, for I had determined, notwithstanding his great superiority, to stop his (the enemy's) career and put it out of his power to do any further mischief. Yet do not imagine that I am one of those hot brained people, who fight at an immense disadvantage, without an adequate object. I will let them alone till we approach the shores of Europe, or they give me an advantage too tempting to be resisted. Therefore do not be surprised if I should not fall upon them immediately; we won't part without a battle. Though we are but eleven to eighteen or twenty, we won't part without a battle; by the time the enemy has beat our fleet soundly, they will do us no harm this year."

18. But while Nelson was resolved to do his best with his inferior forces, he realized that under such conditions, while he might defeat the enemy, he could not completely crush him. As he wished the annihilation of the enemy and as "half a victory would but half content him" he begged repeatedly for a fleet equal to or at least nearly equal to that of the enemy, for "only numbers can annihilate."

19. Nelson added also to the tradition of his service the principle that the commander should win the love of his subordinates in order to obtain from the greatest exertions and the greatest loyalty. When he joined his fleet before the battle of Trafalgar "the officers I met with caused the sweetest sensation of my life. The officers who came on board to welcome my return forgot my rank as commander in chief in the enthusiasm with which they greeted me. As soon as these emotions were past I laid before them the plan I had previously arranged for attacking the enemy and it was not only my pleasure to find it generally approved, but clearly perceived and understood. When I came to explain the 'Nelson touch' it was like an electric shock."

20. The great victory of Trafalgar measures well the worth of the tradition which Nelson personifies. Let us sum up briefly the principles of this tradition:

1st. The most careful preparations should be made; superior numbers and the best possible quality of material should be supplied; the officers should be carefully educated in the doctrine of the service; the loyalty of subordinates should be won by the

commanders; boldness and initiative of the officers should be encouraged; the crews should be carefully drilled and disciplined.

2d. Commanders should cooperate loyally and act for the good of the whole naval service.

3d. The enemy should be energetically attacked before he is allowed time to escape, but the attack should be made under the most favorable conditions and with the greatest skill, so that the whole force may fall upon a part of the enemy's fleet.

4th. The fight should be pushed to such a close range that a definite decision may be obtained, and when battle is once commenced, the attack must be persisted in until a decision is gained.

5th. After the decision is gained, the enemy should be pursued until no further damage can possibly be inflicted upon him.

21. We must realize that this tradition is peculiar to the British naval service, and that because all the great British successes have been founded upon it, is no proof that it would win successes for other nations. This tradition was built up by a long series of successes over the French and Spaniards, who usually were not worthy opponents for the British Navy. Since the last Dutch wars the British Navy has never been opposed in a great campaign by a really efficient navy with equal resources.

VII. Our Own Naval Tradition

1. We have now examined a number of the most famous traditions of military services in modern times, and we have seen the great importance of having such a tradition and of actually keeping it alive in the service. Have we any naval tradition and do we keep it alive in our service? You may perhaps answer that we have brought home Paul Jones and that we have kept the old hulk of the *Constitution*. But have we brought back the spirit of Paul Jones and have we kept alive that spirit which animated the men of the *Constitution* on her memorable cruises? If we have not, then a task lies before us. Let us first look back together over the record of our service and see what our ancestors have bequeathed to us. If their ideals have been so high and their deeds so great that they can to-day inspire us to greater exertions in peace and greater deeds in war, then we must form these almost forgotten ideals and actions into a great naval tradition, which we must never forget.

VIII. OUR NAVY IN THE REVOLUTION

1. In the Revolution a navy was assembled and improvised in such a hurry and under such distressing conditions, that great deeds could hardly have been expected of it. There was no period of careful preparation, of complete development of material, of careful training of the personnel and thorough education of the officers, which has, almost without exception, preceded the great age of a military service. It therefore very naturally followed that only in cases where our forces happened to be led by officers of great courage and of great skill, which they had acquired entirely through their own efforts, could high ideals inspire the service and great deeds be performed.

2. Such an officer was Nicholas Biddle. He had been a merchant captain before the war, and when the navy was established was one of the first six captains to be commissioned. After several successful cruises he was given command of the new frigate *Randolph,* 32. In company with a number of smaller vessels, while cruising in the West Indies, he fell in with the British ship, of the line *Yarmouth,* 64. He signalled for his consorts to escape, and to cover their retreat, he boldly engaged the *Yarmouth,* which, considering the greater caliber of her guns and the greater thickness of her sides, was from three to four times superior to the little *Randolph.* After an obstinate struggle, Biddle actually attempted to close and board the *Yarmouth,* but when close alongside, his magazine was exploded and the ship completely destroyed, only four men being saved. This fight gave the other American ships time to escape. In combats between ships differing so greatly in strength as did the *Randolph* and *Yarmouth,* it was very rare that the weaker attempted a resistance. In fact it was customary for such a ship, after all efforts to escape had failed, to fire a few shots and then surrender. Captain Biddle, although he himself was mortally wounded, refused to surrender while any method of attacking the enemy remained untried, and while he could inflict any injury upon him. The desperate courage of Biddle and his crew and the great skill with which they continued this fight against hopeless odds makes this action perhaps the most brilliant and inspiring in our entire naval history. These men were not content with merely doing their duty; they were not satisfied with making ordinary efforts and showing average ability

and courage; they had practically no chance of success, but still they gave to their country all that any men could give.

3. Paul Jones, before the Revolution, was an accomplished merchant captain of proved skill and courage. While he had never served in the naval service, he had studied carefully the naval profession, and had a most complete knowledge of naval material, strategy, tactics and diplomacy. When the navy was founded, he was practically the only American familiar with the naval profession and therefore his advice was freely asked in regard to all questions of material and personnel, and in most cases, except when opposed by New England politicians, was closely followed by the naval committee of Congress.

4. After making several very successful cruises in American waters, he was given the command of the new sloop of war *Ranger* and was sent to France with the news of the victory at Saratoga. This gave him an opportunity to carry the war into the enemy's waters, an operation which he had repeatedly urged upon Congress. This daring cruise ended with the capture of the British sloop of war *Drake,* which was slightly superior to his own ship. "The behavior of my men in this engagement more than justifies the representations I have so often made to you of what American sailors would do if given a chance at the enemy in his own waters. We have seen that they act with courage on our own coast. But no one has ever seen them fight on our own coast as they fought here, almost in hail of the enemy's shore."

5. Paul Jones next received the command of an old East Indiaman, converted into a man-of-war, the *Bonne Homme Richard,* and sailed in company with the *Alliance,* 36, and several smaller ships for the British coast. At the beginning of this famous cruise, he described his intentions in a letter to Dr. Franklin: "With this in view, I would not deem it a misfortune if I fell in with a ship of the enemy superior enough in force to make the taking of her an event of more than ordinary note. Mindful of all I have said and written to you about the great moral benefit which would accrue to our cause from a striking or, maybe, startling naval success, demonstrating our ability to cope with the English on the element they have so long and so arrogantly ruled, I shall welcome the approach of such a ship. All I hope for is the chance; and if such opportunity shall come to me, rest assured

that I shall improve it in a manner not soon to be forgotten by the world and that neither our country nor the enemy can ever forget." After a short cruise which was uneventful except for the insubordination and treachery of the captain of the *Alliance*, Jones fell in with the British frigate *Serapis*, which was decidedly superior in force to his own ship. Here was just the opportunity he had wished for. Jones spent most of the afternoon getting between the *Serapis* and the British coast so that she could not escape. At about the time of sunset, the action commenced at medium range. At the first discharge two of the 18-pounders on the *Richard's* lower deck blew up, killing the crews and so wrecking the deck that the other gun on that side could not be used. The *Serapis*, by this disaster, was now superior in gunfire by nearly two to one and was rapidly knocking the *Richard* to pieces. Jones realized that his only hope was to bring the two ships together and to win by boarding. He therefore very skillfully, and aided by a lucky puff of wind, ran the *Serapis* aboard and lashed the ships together. At this time, while the fight on the upper decks was as yet undecided, the conditions below were so bad that success was almost impossible. Practically every one of the guns on the main deck were disabled, the ship was on fire and leaking very badly. The *Alliance* passed close aboard and fired a broadside into the *Richard*; the master-at-arms released the numerous prisoners from the hold and allowed them to swarm up on the upper deck; a warrant officer called to the enemy for quarter. What did Captain Jones do in this grave crisis? Let the British captain tell us: "Hearing or thinking that I heard a call for quarter from the enemy, I hailed to ask if he had struck his colors. I did not myself clearly hear the reply, but one of my midshipmen, Mr. Hood, did hear it and soon reported it to me. It was to the effect that he was just beginning to fight. This I at first thought to be mere bravado on his part. But I soon perceived that it was the defiance of a man desperate enough, if he could not conquer, to sink with his ship alongside." The captain of the *Richard's* French marines being wounded, these men began to fall back from their posts. Jones sprang in among them to encourage them. His French orderly describes the effect of his actions as follows: "In an instant they were filled with courage! The indomitable spirit, the unconquerable courage of the commodore penetrated every soul, and every man who saw

his example or heard his voice became as much a hero as himself. At that moment the fate of the combat was decided. Every man whose wounds permitted him to stand up pressed forward to the front of danger. The commodore had but to look at a man to make him brave. Such was the power of one heart that knew no fear! Such was the influence of one soul that knew the meaning of no other word than conquest." From this time the tide began to turn in his favor, the British were driven from the upper decks and Nathaniel Fanning from the *Richard's* yardarm threw a hand granade down the *Serapis'* hatch and exploded a long row of ammunition on her gun deck. Just as our boarders went over the sides the *Serapis* surrendered. In this battle and, in fact, in this whole campaign, Jones, overcoming all sorts of difficulties and misfortunes, displayed a resolution, courage and skill, which has probably never been surpassed. It is true that his actions were on a small scale, but as we read of what he accomplished with such miserable resources, and under such vicious and distressing conditions, we may be certain that, had he been given an efficient fleet and a great opportunity, Lord St. Vincent would never have been able to say, " There is but one Nelson."

6. The tradition and reputation of Paul Jones had such a remarkable effect that when he was later in command of the *Alliance*, 36, his crew presented him a petition signed by every man in order of rating: " We respectfully request you, Sir, to lay us alongside any single decked English ship, or any double decked ship under a fifty." Of this remarkable petition, Jones wrote: " When this paper was handed to me I could hardly control my feelings. I promised them that I would keep a good lookout and, if the occasion presented, would conform exactly with the terms of their petition. In view of the condition of the ship and the strong force and fierce temper of my crew, I am persuaded that our failure to encounter an English ship of reasonable equal force was a misfortune to our cause. Knowing the strength and spirit of my crew as I did, I would not have hesitated to lay the *Alliance* close aboard of any fifty-gun ship in the English Navy."

7. Paul Jones may well play a role in our naval tradition similar to that which Hawke and Blucher did in their services. His wonderful deeds undoubtedly inspired our service throughout its great age with that resolute spirit, upon which all its victories were based.

IX. OUR NAVY IN THE WAR OF 1812

1. In 1797 we commenced to build up a new navy. Six fine frigates and a number of smaller vessels were constructed. Of these frigates, three were armed with long 24-pounders and were, for their displacement, probably the most efficient ships afloat. Although, after Jefferson came to office, no ships larger than an eighteen-gun sloop were built, the ships we had were kept at the highest possible state of efficiency. The personnel was highly trained; the superior officers were expert in handling their ships; the junior officers were skilled in gunnery and seamanship; the crews were carefully disciplined and were thoroughly drilled in gunnery, boarding and seamanship. All were thoroughly tested out and hardened by actual fighting in the minor wars with France and Tripoli, and best of all they were inspired with the strong fighting spirit of Nicholas Biddle and Paul Jones, whose great deeds were still fresh in their memory. This period of careful preparation so greatly increased the efficiency of the navy that only the opportunity was needed for this service to build up, by actual deeds in war, a great tradition.

2. In the War of 1812 it might almost be said that "every captain distinguished himself." If we were to except Lawrence's rashness in fighting the Shannon with a raw crew, Perry's unskillful approach in the battle of Lake Erie, Chauncy's overcaution on Lake Ontario, the bad behavior of the *Avon's* crew and Decatur's early surrender of the *President,* we could well say that the conduct of the entire navy throughout the entire war was as near perfection as the conduct of any great military service could possibly be. In fact, our record was so uniformly excellent that it is difficult to pick out individual cases to illustrate the courage and skill displayed by our commanders and their crews.

3. In the three days chase of the *Constitution,* Captain Isaac Hull showed the highest grade of seamanship in escaping from five British frigates, two of which were commanded by especially able officers. Shortly after this the *Constitution,* still commanded by Hull, captured the British frigate *Guerriere.* This action was undoubtedly won partly by superior material power, but it was certainly won mostly by skillful maneuvering and accurate gunnery. The same may be said about the action between the *United States.* Captain Decatur, and the British frigate *Macedonian.* In

the fight between the *Constitution* and the *Java*, the maneuvering on each side was excellent, and we won through superior power and more accurate gunnery. The *Constitution* later in the war, when commanded by Captain Stewart, captured the *Cyane* and *Levant* in an action marked by the most brilliant tactical maneuvering and skillful gunnery. In all these actions, as well as in numerous smaller actions, victory was won, partly it is true by superiority in force, but mostly by our superiority in maneuvering and gunnery. In these actions our skill so quickly won the decision with such small loss to ourselves, that the courage of our commanders and crews was hardly put to the test. However, we may be certain that, if desperate courage in addition to skill had been needed to gain the decision, the exploits of Paul Jones would have been repeated by the great captains, Hull, Decatur, Bainbridge and Stewart.

4. Captain David Porter, in the *Essex*, 32, after failing to meet in the West Indies the vessels with whom he was to rendezvous, decided entirely upon his own initiative to double the Horn and attack the British whalers in the South Pacific. In doing this he was going into what were practically enemy waters (Spain and Portugal were allies of England) where he would have no port in which to refit and no communication with his country. In a most bold and skillful cruise of over a year he drove the British shipping completely from the South Pacific and supported his ship entirely with material taken from his prizes. Finally he was attacked in the neutral waters of Chile by two British ships, one slightly superior and one slightly inferior in strength to the *Essex*. Porter was unable to get under way and could not for lack of time rig springs on his anchor cable. The *Essex* unfortunately mounted but twelve long guns, 12-pounders, the remainder of the battery being carronades. In this position, Porter had practically no chance of success. The British ships, being under way, could choose their position so that they could rake the *Essex*. They could also choose their range so that only long guns would be effective, and as they together had twenty-six long 18-pounders, two long 12-pounders, and six long 9-pounders against the twelve long 12-pounders of the *Essex*, they had a great advantage over her. In the face of these odds, Porter made a most desperate resistance for two hours and a half, during which time he used every possible method of inflict-

ing injury upon the enemy. After two-thirds of the crew and all the commissioned officers save one had been either killed or wounded, and the last gun which would bear destroyed, the ship was surrendered. Captain Hilyer, the British commander, says in his report: "The defense of the *Essex,* taking into consideration our superiority of force and the very discouraging circumstance of her having lost her main topmast and being twice on fire, did honor to her brave defenders, and most fully evinced the courage of Captain Porter and those under his command. Her colors were not struck until the loss in killed and wounded was so awfully great and her shattered condition so seriously bad as to render all further resistance unavailing." In such a manner did Captain Porter live up to the tradition of Biddle and Jones. In this action one of the midshipmen was Farragut. All through his career Farragut was inspired with this fighting spirit of the *Essex,* and it was this spirit which later carried him past the forts of New Orleans, Vicksburg and Mobile. Thus the men of the *Essex* did not die in vain. The memory of their deeds and their courage reached far into the future and won great victories for the nation at the time when they were most needed.

5. Captain Lawrence, who had, as captain of the *Hornet,* taken the British sloop *Peacock,* was promoted to the command of the frigate *Chesapeake.* While a bold and skillful officer, "a very Bayard of the seas," his previous service against the British Navy had made him overconfident. Therefore he rashly took his ship out of Boston without due preparation, with new and untrained officers, a raw and untrained crew, which was composed partly of foreigners, to meet the frigate *Shannon,* commanded by Captain Broke, one of the ablest British officers, who had so trained and drilled his crew for seven years that his ship was known as one of the crack ships of his service. At the beginning of the action the gunnery of the two ships was equally accurate, but the rigging of both ships being severely injured, they fell together. At this critical moment Captain Lawrence was mortally wounded and the foreign element of the crew left their posts. Captain Broke had the ships lashed together and led the boarders onto the *Chesapeake's* quarterdeck. After a desperate but unorganized resistance, in which nearly one-half our crew was killed or wounded, the ship was captured. Inferior skill and discipline were responsible for this defeat. The actual loss of the *Chesapeake* was a

terrible blow to the nation and the loss of prestige was a greater one, but perhaps these were all compensated for by the heroic conduct of Captain Lawrence. Even after he had been mortally wounded, he urged on his men with the famous command, "Don't give up the ship." While we should not copy, as a general rule, Lawrence's rash attack without preparation, especially when we are opposed by a strong enemy, his fighting spirit, like that of Biddle, Jones and Porter, should be forever kept alive in the service. A navy which will never surrender, or which will surrender only when it is absolutely impossible to inflict further injury upon the enemy, will always have a great advantage over one which surrenders as soon as it sees that the chances of success are against it. We shall see later how Lawrence's spirit was introduced into our fleet on Lake Erie and that it was this spirit which decided the great victory of this fleet.

6. At the beginning of the war the British controlled Lake Erie with a fleet far superior to our force of three small schooners. Captain O. H. Perry was assigned to the duty of building up a fleet on the lake. With the greatest energy Perry assembled material and practically without any facilities built two fine twenty-gun brigs, the *Niagara* and the *Lawrence*, the latter in honor of Captain Lawrence of the *Chesapeake*. Three schooners were also commissioned. This energetic building up of our sea power on the lake, so that we obtained a force superior to the enemy's fleet, was worthy of the very highest praise. Perry, in addition to very efficiently building up the material of his fleet, did all in his power to train his personnel, but as immediate action was imperative, he had not the time necessary to properly educate his captains in fleet tactics and his crews in gunnery. A little over a month after Perry had taken the lake, he met the British fleet. As this fleet was inferior in about the ratio of two to three, Perry, although he was far from being thoroughly prepared for battle, very properly decided to take advantage of his opportunity and to force battle on the enemy. He commenced the attack upon the closely concentrated British fleet with but four ships, the other five, including the *Niagara*, being for a large part of the fight well out of range, due either to Perry's undue haste or the poor seamanship of the captains. Perry, in the *Lawrence*, ably supported by the schooners *Scorpion* and *Ariel* and the brig *Caledonia*, although opposed for the time by superior numbers, carried on the fight with the highest

spirit and the greatest courage. Inspired by their battleflag, which bore Lawrence's dying words, "Don't give up the ship," the *Lawrence* was fought until every gun was disabled and four-fifths of the crew killed or wounded. The British also suffered heavy losses. After the *Lawrence* was reduced to a total wreck, it appeared that defeat was certain, unless the remaining five American ships could be quickly brought into action. In this crisis, Perry acted with superb resolution, rowing in a small boat under a heavy fire to the *Niagara*. With this ship, which as yet had not been engaged, and followed by the four remaining schooners, he closed the enemy and breaking through their line, raked their heaviest ships on each side. This broke the enemy's gallant resistance and their whole fleet was taken. In this action victory was won by the wonderful fighting spirit of the *Lawrence's* crew, the persistent courage and resolution of Captain Perry when defeat seemed almost certain, and largely, of course, by his most efficient upbuilding of a superior fleet.

7. On Lake Champlain, Captain Macdonough commanded our forces, three large vessels and a number of gunboats. The British fleet, which included the fine frigate *Confiance,* was considerably stronger. A large British army was advancing along the western shore of the lake and Macdonough saw that for this army to advance it would be necessary to use the lake for the transportation of their supplies. To be able to do this, the British fleet must first attack and destroy the American fleet. Therefore Macdonough decided to take up a defensive position in Plattsburg Bay. This position was selected with the greatest care. In attacking him, the British would, in all probability, be forced to beat up against the wind, which would place them in a position in which our long guns could rake them during their slow approach. Our position could not be turned at either end and in order to anchor opposite our line, the enemy would be forced to approach to such a close range that our carronades, of which we had a far greater number than the enemy, would all be effective. In addition to selecting such an excellent position, in which the enemy could attack only at a great disadvantage, Macdonough prepared his fleet for battle with the greatest thoroughness. Springs were put on the anchors and a number of spare anchors were put out in all directions, so that each ship's broadside could be presented in any desired direc-

tion. The crews were trained in gunnery as completely as the short time would allow.

8. As Macdonough had calculated, the British suffered severely before they could close our line and anchor, but when once they had anchored, their superior strength told, especially as the *Eagle*, at the end of our line, was driven from her position, and her opponent, the *Linnet*, swung her broadside so as to rake the *Saratoga*, our flagship. Macdonough and his crew fought the *Saratoga* with the greatest courage until every gun on the engaged side was disabled. At this desperate crisis, the ship was wound around by means of the spare anchors laid out before the action, so that her fresh broadside could bear. The British ships attempted to do likewise, but not being able to set out anchors, failed. After having suffered terrible losses, and when further resistance was impossible, all their large ships surrendered. The gunboats escaped. In this action, Macdonough, ably assisted by his commanding officers, and the personnel of the fleet, won a notable victory over a superior force, through careful preparation, skill in seamanship, great courage and quick and bold initiative.

9. Of these two lake actions Roosevelt says: "Lake Erie teaches us the advantage of having the odds on our side; Lake Champlain, that, even if they are not, skill can counteract them." While both Perry and Macdonough showed unsurpassed courage and determination in action, Perry won because he had carefully built up his fleet, while Macdonough, not having sufficient facilities to win in this way, won because he skillfully handled his fleet in action.

10. In the War of 1812 the same spirit, almost without exception, animated the officers of the naval service. They carefully prepared their material by the hardest work; they continually drilled their crews in gunnery and seamanship; they educated themselves thoroughly along all the lines of the naval profession, and especially in seamanship, single ship tactics, and gunnery. In action they acted with bold audacity or deliberate caution as the occasion demanded; they maneuvered their ships with the greatest skill and directed their gunfire with the greatest accuracy; they fought with courage and resolution and did not leave off action until they had completely defeated the enemy or until their ships were so completely disabled that they were unable to inflict

further loss on the enemy. We must remember that our officers acted in this way at a time when they were matched against the largest navy of the world, which had held the highest reputation for courage and efficiency, and which had for a century held almost undisputed supremacy on the seas.

X. OUR NAVY IN THE CIVIL WAR

1. During the period from 1812 to 1860 our navy was kept up nearly to the high standard it reached in the War of 1812. The war with Mexico and the numerous minor fights in which our service was continually engaged served to keep it up to a high state of efficiency. As the officers of the Confederate Navy were practically all at one time members of the regular service, their record in the war, in addition to the record of the regular service, must be included in our naval tradition.

2. At the beginning of the war, the regular navy was composed of unarmored wooden sailing and steam vessels. These proved to be of little use, when employed against armored ships. The Confederates, of course, had no regular navy. Each side had, therefore, to build up an effective navy before any important operations could be carried out. Each side made a most remarkable record in building ships, in which were introduced new designs which revolutionized the naval construction of all the nations. On the Mississippi, Mr. Eads built in ninety days a number of armored gunboats, which gave very satisfactory results.

3. In one of these vessels, the *Carondelet,* Captain Walke ran the forts at Island Number Ten with the greatest skill and audacity, thus establishing a tradition of our navy in this war. Our fleets, following the example of the *Carondelet,* continually ran past the heaviest batteries, usually at night, throughout the entire war. This fleet of gunboats carried on a fine campaign on the Mississippi and was of great assistance to the army.

4. After the capture of Norfolk by the Confederates, the steam frigate *Merrimac,* which had been sunk when the navy yard was abandoned by the Federals, was raised and converted into a formidable ironclad ram, mounting ten large guns. The officers who rebuilt the *Merrimac* deserve the highest praise for the new design they originated and for the great skill and energy with which the work was carried on.

5. On the 8th of March, 1862, the *Merrimac* stood out into Hampton Roads to attack the Federal fleet anchored there. The *Merrimac* first encountered the sailing sloop of war *Cumberland* and succeeded in ramming her at full speed. Her commander, Lieutenant Morris, made a most desperate resistance, until she sank with colors flying, the crew fighting with the most perfect courage and firing the guns up to the last minute. They lived up to the most glorious traditions of the service.

6. The *Merrimac* next attacked the *Congress,* commanded by Lieutenant Joseph B. Smith, who seeing the impossibility of making any effective defense or of escaping, ran his ship aground. After the captain was killed, the crew of the *Congress* continued their resistance until every gun that would bear was disabled, the ship on fire and a large number of men killed and wounded. Then, as nothing more could be done, the flag was hauled down. During the night the ship blew up and was completely destroyed. The *Merrimac* was handled throughout both these actions with great skill and determination by her capable commander, Admiral Buchanan, who was wounded. After the *Congress* had hauled down her colors, the *Merrimac* retired to Norfolk to wait for the next day to complete the destruction of the Federal fleet.

7. Meanwhile Ericsson was building a new ironclad, the *Monitor,* in the New York Navy Yard. Ericsson showed the most wonderful persistence and energy, first in obtaining the consent of the Navy Department to build the ship, and second in actually building it. It was most skillfully designed, had many novel features and by almost unparalleled work was completed in four months. Lieutenant John Worden was assigned to command and a volunteer crew was formed. On March 6th, the *Monitor* left New York, and running into a severe storm, would have foundered had it not been for the great courage and exertions of the crew. During the night of March 8, the *Monitor* entered Hampton Roads and the next day, when the *Merrimac* came out to complete the destruction of the Federal fleet, a remarkable battle between the two ironclads commenced. Considering the extremely short time allowed for the training of the crews, the difficulties of training the *Monitor's* turret on the target, and the difficulties of maneuvering such clumsy vessels, the battle was fought with great skill on both sides. Although the ships fought close alongside

most of the time and repeatedly fired their guns at point blank range, neither could penetrate the other's armor. Finally the *Monitor's* conning tower was hit and Captain Worden was severely wounded. As the *Merrimac* had also been considerably damaged, and as both crews were tired out by their four hours fight, each ship withdrew simultaneously. The action was a drawn battle and reflects the greatest credit on both sides.

8. In the cruise of the Confederate cruiser *Alabama,* Captain Semmes and his officers displayed the greatest skill and resource, and notwithstanding the fact that the crew was composed almost entirely of British mercenaries, kept the seas for 22 months, taking in all sixty-six prizes and driving our commerce from the Indian Ocean. Finally the *Alabama* met off Cherbourg, France, the steam frigate *Kearsarge,* which was considerably superior to her in armament. In the engagement which followed, the Confederates showed the greatest courage, but were finally compelled to surrender by the extremely accurate gunnery of the *Kearsarge.* So desperate was the resistance of the *Alabama* that she went down a few minutes after she was surrendered. This engagement reflected the greatest credit on both sides.

9. While in Japan, searching for the *Alabama,* Captain McDougal, in the steam frigate *Wyoming,* received news of the activities of pirates in the southern part of Japan. They had captured several ships, had gathered a small fleet of armed vessels and had protected their stronghold by strong batteries mounting over thirty guns. They had beaten off with severe loss an attack made by several foreign man-of-war. Although he had orders to return home, Captain McDougal immediately steamed to the pirates' stronghold, and by an audacious and determined attack, won a complete victory over them. This brilliant exploit, which reflected such credit on our navy, unfortunately came at a time when the interest of the people was held by the great campaigns of the Civil War, so that it gained little attention and was soon forgotten.

10. Farragut's campaigns were in point of size the greatest operations ever carried out by the navy. They were made with the greatest skill and audacity and accomplished the most important results. Farragut, all things considered, is the greatest figure in our naval tradition and it is very unfortunate that his campaigns were made largely against shore fortifications and not against a strong hostile fleet, because in this case, Farragut would almost

surely have given us an example equal to that which Nelson gave to the British naval service.

11. Farragut's first feat was the running of the Mississippi forts below New Orleans. Such an operation by an entire fleet of wooden ships was considered almost impossible. There were two forts, one on each side, which were very heavily armed, and in addition the Confederates had a considerable flotilla of armed steamers. Obstacles were placed across the channel and a number of fire ships were prepared. The advance past the forts was planned with the greatest care and carried out at night with the greatest boldness. After the forts were passed, the entire hostile flotilla was captured, and the City of New Orleans taken. The forts, being cut off, were compelled to surrender. The great principle upon which Farragut acted is stated in his remark: "The best protection against the enemy's fire is a well directed fire of our own guns."

12. After this battle, Farragut made a fine campaign up the Mississippi River, running the batteries at Port Hudson and Vicksburg, and clearing the Mississippi of Confederate shipping. The capture of the Mississippi River by the combined operations of Foote, Porter and Farragut did more than anything else to decide the war in our favor.

13. After the river was cleared, Farragut was given command of the fleet operating against the Confederates at Mobile Bay. The Confederates held an extremely strong defensive position. On each side of the entrance were powerful forts, which mounted in all more than one hundred heavy guns. The channel was narrow and ran in such a direction, that the ships entering it would have to head directly toward the stronger fort, so that during the approach they would be exposed to a raking fire, without being able to use their broadside guns. The channel, except for a narrow opening directly under the guns of the stronger fort, was protected by numerous lines of mines. In addition there was the formidable ironclad ram *Tennessee,* commanded by Admiral Buchanan, who had commanded the *Merrimac* when she sank the *Cumberland* and *Congress.* There were also a number of small gunboats. So strong were these defenses that it was openly calculated in the Federal fleet that six ships would be lost in passing the forts into the bay. Farragut with the greatest courage decided to force the passage.

14. The preparations were made with the greatest of care. Four monitors led the advance, with instructions to pass close to the fort on the right side, so that the mines would be avoided. Following the monitors were fourteen wooden ships, which were lashed together in pairs, the larger ships being to the right. The *Brooklyn* led the column of wooden ships, with the *Hartford,* the flagship, second. The leader of the monitors, Captain Craven in the *Tecumseh,* misunderstanding his instructions and seeing the *Tennessee* on his port bow across the mine field, headed directly for her. Hitting a mine his ship was completely destroyed and sank instantly. At this the other monitors and the *Brooklyn* stopped, thus throwing the whole column into confusion and holding them stationary under the fire of the Confederate guns, to which they could make no effective reply. In this desperate crisis, a desperate remedy was necessary. Farragut saw that he must take the lead. The *Brooklyn* blocked the passage toward that part of the channel, which was free of mines, making it necessary for the flagship to pass directly through the mine field. With superb courage and bold initiative, Farragut gave the order: "Damn the torpedoes, Four bells! Drayton, go ahead! Jouett, full speed!" which has since become a tradition in our service. The *Hartford* hit a number of mine cases, but fortunately none exploded, and she passed through safely, followed by the other wooden ships, the monitors standing in close to the fort and keeping it under their fire until the guns were silenced. As the column passed into the bay, the ram *Tennessee* attacked each ship as it approached, and after inflicting some slight damage, retired under the guns of the fort. In the meantime the three monitors had completed the bombardment, had rejoined the flagship inside the bay, the Confederate gunners had returned to their fort and manned their guns, the Federal gunboats, being cast off from the large wooden ships, had pursued the hostile flotilla and destroyed it. After a short lull in the action, the *Tennessee* stood out gallantly from under the guns of the fort to attack single-handed the entire Federal fleet. Farragut signalled: "Attack the ram, not only with your guns, but bows at full speed." The order was carried out with great resolution, each captain attacking the *Tennessee* with the greatest possible speed. The *Monongahela* and the *Lackawanna* both rammed the *Tennessee* at full speed, but the latter, uninjured, kept on for the *Hartford.* These two ships approached each other bows on at

full speed, but at the last instant the *Tennessee* sheered off a little and the *Hartford* just grazed along her side. The three monitors came into action and the ram's guns were soon all disabled, and her gallant captain, Buchanan, severely wounded. This brave officer refused to surrender, until his ship had received the fire of the entire Federal fleet for twenty minutes after his last gun had been put out of commission, and until his engines were disabled and his steering gear was destroyed. Then he said to his executive officer: "If you can do them no further damage, you had better surrender." In this fine defense Buchanan had lived up to the best traditions of our navy. After this great victory in which he had acted throughout with the greatest skill and courage in a manner above praise, Farragut reported that "he had reason to feel proud of the officers, seamen and marines under his command; for it has never fallen to the lot of an officer to be thus situated and thus sustained."

15. In addition to these important operations, the war was marked by a number of skillful and audacious minor operations, carried on by junior officers. Cushing destroyed the *Albemarle* in a steam launch carrying at the bow a spar torpedo. A Confederate submarine, the *David,* was constructed in Charleston and on trial runs sank no less than five times, drowning nearly all of the crew on each occasion. A sixth crew volunteered and this time succeeded in blowing up the Federal ironclad *Housatonic* with a spar torpedo, while the *David,* of course, sank for the last time. This gallant exploit, in which success would mean the certain death of every one of the crew, is almost unequalled in history, and is one above all others of which our service should be proud.

16. In the Civil War there were few purely naval operations. Most of the actions were bombardments of forts and batteries and skirmishes between gunboats. There were few actions between evenly matched ships and none in which two fleets were matched against each other. Still these actions served to show that the officers and crews of both the Federal and Confederate navies were actuated by the same spirit as that for which our navy has been noted from the beginning of its history. All we have said in praise of our naval officers in the War of 1812 holds good for the officers of the two navies in the Civil War. With the Civil War the great age of our service ends.

XI. THE OLD TRADITION OF OUR NAVY DURING ITS GREAT AGE

1. As we glance back over the record of our service from the time of Biddle and Jones to that of Farragut, we see everywhere a remarkable similarity. The rapid building of the Mississippi gunboats and the *Monitor,* the energetic construction of the *Merrimac* and the other Confederate ironclads, practically without all facilities for naval construction, may be compared to the rapid construction by Perry of his superior fleet on Lake Erie. Farragut and Winslow, in their careful preparation for action and the training of their crews, remind us of Hull, Decatur and Macdonough. Farragut and McDougal, in their determination to push the attack to close quarters, follow closely Paul Jones and Perry. Farragut, in his bold initiative at critical moments, imitates Jones, when he laid the *Serapis* close aboard after losing in the gunfight, Perry, when he shifted his flag to the *Niagara* and renewed the attack, and Macdonough, when he presented the *Saratoga's* fresh broadside. Captain Morris of the *Cumberland* and Captain Semmes of the *Alabama,* in fighting until their ships sank, showed the desperate courage of Biddle and Jones. The officers of the *Congress* and Admiral Buchanan in the *Tennessee* acted as did David Porter in the *Essex* in refusing to surrender until they could inflict no more injury upon their opponents. Winslow in the *Kearsarge* and Buchanan in the *Merrimac* maneuvered as skillfully as did Hull and Decatur. The gunnery of the *Kearsarge* and the *Wyoming* can be compared with that of the *Constitution* and the *United States.* Walke, Cushing and the brave crews of the *David* carried out exploits with an audacity equal to that displayed by Somers in the fireship *Intrepid* and Decatur in the cutting out of the *Philadelphia.* In all our wars our officers have refused to be discouraged by the failure of their government to supply them with the necessary material and by the hampering of their initiative by the civil authorities, conditions which are almost sure to be present in a democratic nation. How was Paul Jones fettered by the selfish New England politicians? How long did he have to beg to the King of France for the old *Richard,* whose guns burst at the first discharge? But see what he accomplished despite these obstacles! How many ships did Jefferson and his successors build for the navy from 1800 to 1812? But see what the navy did with the ships it had in 1812! What kind of a naval policy did we have in the Civil War, when an important member of the civil government

telegraphed to Vanderbilt asking for what sum of money he would contract to sink the *Merrimac*? But did this in any way affect the courage of Farragut and his men?

2. To account for this remarkable similarity in our naval history from the time of the exploits of Biddle and Jones, extending through the wars with France, Tripoli, Great Britain and Mexico and concluding with the great Civil War, we see that there must have been a great tradition, built up by our officers in the Revolution and the War 1812, and handed down in the service from one generation to another.

XII. THE SERVICE TO-DAY AND ITS NEED OF THIS OLD TRADITION

1. To-day in the navy we have fine material and fine ships; not so many ships perhaps as some of us might wish, for we all realize that "only numbers can annihilate" and of course our aim must be to annihilate the enemy. Still we have a far greater number of ships than we have ever had before, and a fleet which affords us an excellent chance of success in a war with any great power. But it is not only ships and material which count in war. The spirit with which these ships are prepared and used in war by our officers and crews is far more important. Have we this great spirit which compels us to achieve the greatest results possible with the resources given us by the country? Have we a spirit equal to that of Paul Jones and the men of the *Constitution*? If we have not, then we must revive the old tradition of the service, we must bring back the memory of our great age. "Treasure it in your minds and pass it on to your children, for the memory of a great age is the most precious treasure that a nation can possess. As the tree is nurtured by its own cast leaves so it is these dead men and vanished days which may bring out another blossoming of heroes, of rulers and of sages" (Conan Doyle). We in the service must therefore bring back our great tradition, we must learn the exploits of our dead heroes, the principles upon which they fought, the spirit which actuated them and the ideals toward which they strove. We must "here highly resolve that these dead shall not have died in vain," we must reach back into the past for all the assistance and inspiration they can give us, we must keep alive their great tradition in such a way that in both peace and war we will be urged on to ever greater exertions, so that our record in the future may equal or surpass that of our service in its great age.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE LOG OF THE C. S. SUBMARINE

By WILLIAM E. BEARD

In memory of the supreme devotion of those heroic men of the Confederate Army and Navy, first in marine warfare to employ torpedo boats. Moved by the lofty faith that with them died, crew after crew volunteered for enterprises of extremest peril in defence of Charleston harbor.

At the Meeting Street entrance to the Battery at Charleston, the Daughters of the Confederacy and the Memorial Association of Charleston have set up a granite block of stalwart proportions, on one of the bronze tablets of which the above appears. There are some other facts perpetuated upon the tablet.

Of more than thirty men drowned in this desperate service the names of but sixteen are known.

Horace L. Hunley,
Inventor of Submarine boat.
Robert Brockbank.
Joseph Patterson.
Thomas W. Park.
Charles McHugh.
Henry Beard.
John Marshall.
Charles L. Sprague.
George E. Dixon,
Lieutenant 21st Alabama Volunteers.
C. F. Carlsen,[1]
Corporal Wagener's Artillery.
Arnold Becker.
James A. Wicks.
C. Simpkins.
F. Collins.
——— Ridgeway.
——— Miller.[2]

One born since the great American Civil War may be disposed to cherish a certain degree of animosity toward South Carolina—remembering the prompt passage of the ordinance of secession

[1] The spelling of the names of the men lost with Dixon is taken from a report made by Capt. M. M. Gray to Maj. Gen. Dabney H. Maury, appearing in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

[2] ——— Miller's name does not appear in the list sent Gen. Maury by Capt. Gray, referred to in footnote No. 1.

and the bombardment of Fort Sumter—for her conspicuous part in precipitating a national tragedy so awful as that war. But there is this to be remembered, too—the steadfast, the undaunted, the unfaltering defence of historic old Charleston, a defence which was not abandoned till some six weeks prior to the fall of Richmond.

One of the interesting units in the defence of Charleston was the Hunley submarine—of especial interest these days, since upon a shot from a submarine torpedo-tube has lately hung the destiny of the nation.

In the official records of the Civil War the little diving boat is called the *H. L. Hunley,* after its inventor. Confederate survivors of the defence of Charleston harbor term it the "fish-boat." In the reports made during the war to the head of the United States Navy it is sometimes referred to as the "American diver." It was a submarine torpedo-boat in the meaning of the term accepted by the world at large at the present time. All it lacked was the torpedo-tube and self-propelling torpedo.

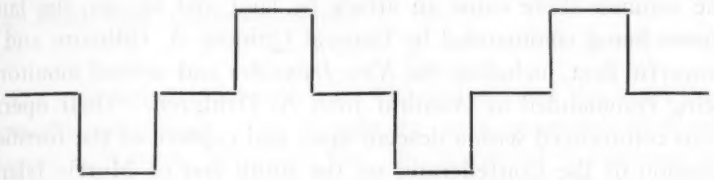
General G. T. Beauregard, who commanded the Department of South Carolina, Georgia and Florida, and whose chief business was the defence of Charleston, has left a description of the *H. L. Hunley:*[3]

> It was shaped like a fish, made of galvanized iron, was 20 feet long, and at the middle 3½ feet wide and 5 feet deep. From its shape it came to be known as the "fish torpedo-boat." Propelled by a screw worked from the inside by seven or eight men, it was so contrived that it could be submerged and worked under water for several hours, and to this end was provided with a fin on each side, worked also from the interior. By depressing the points of these fins the boat, when in motion, was made to descend and by elevating them it was made to rise. Light was afforded through the means of bull's eyes placed in the manholes.

The mechanism was simple. The diving fins were well forward. The propeller, of course, was at the stern, the propeller-shaft running almost the entire length of the vessel. Just forward of the after manhole the propeller-shaft dropped into the form of

[3] Gen. Beauregard's description of the submarine is taken from Col. Alfred Roman's "The Military Operations of General Beauregard in the War between the States, 1861 to 1865." Col. Roman credits it to Gen. Beauregard's article on "Torpedo Service in the Harbor and Water Defenses of Charleston," published in the Southern Historical Society Papers of April, 1878.

an open square, the bottom of the square being the hand-hold of the man working that section of the propeller-shaft. A little further on was an open square reaching upward, the second man facing the first, and so on, there being handles for eight men, the propeller-shaft in bare outline having something of this form:



The little craft was capable of making three knots an hour, though some accounts of her give her speed as five knots.[4] As originally designed, the torpedo was dragged astern upon the surface of the water; the boat, approaching the broadside of the vessel to be attacked, was expected to dive beneath the latter and, rising to the surface beyond, continue its course, thus bringing the floating torpedo against the vessel's side, when it would be discharged by the contact.[5]

[4] —— Belton, a deserter from the Confederate Navy in January, 1864, in describing the *Hunley* to Admiral Dahlgren said she could be driven at a speed of five knots without exertion to the men working her. Belton told the admiral he had worked in the shop in Mobile in which the *Hunley* was built and sometimes nearby. According to his account, the boat was 35 feet in length, or 15 feet longer than Gen. Beauregard's estimate. "Manholes are about 16 inches high," his description goes, "and just above water when trimmed." Belton further informed the admiral that the boat had drowned three crews, one at Mobile and two at Charleston. This information was given before the submarine was finally lost and with her still another crew. Belton's information regarding the *Hunley* is to be found in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

[5] In a letter dated at Mobile, August 24, 1863, Gen. Dabney H. Maury, commander of the Department of the Gulf, wrote to Gen. Joseph E. Johnston:

"The submarine boat sent to Charleston found that there was not enough water under the *Ironsides* for her to pass below her keel; therefore they have decided to affix a spike to the bow of the boat, to drive the spike into the *Ironsides*, then to back out, and by a string to explode the torpedo which was to be attached to the spike."—Series I, Volume 26, Part 2, War of the Rebellion Official Records.

The submarine was built at Mobile,[6] the expense being borne by Horace L. Hunley, of that city, who demonstrated his faith in her by risking his life aboard her—and losing his life in her.[7]

In April, 1863, Admiral Samuel F. Du Pont made an attack upon the defences of Charleston from the sea, which failed. In the summer there came an attack by land and by sea, the land forces being commanded by General Quincey A. Gillmore and a powerful fleet, including the *New Ironsides* and several monitors, being commanded by Admiral John A. Dahlgren. Their operations commenced with a descent upon and capture of the fortified position of the Confederates on the south end of Morris Island on July 10, 1863.

[6] Off Mobile, on February 24, 1863, a deserter from the Confederate gunboat *Selma* made a statement to Commodore R. B. Hitchcock, U. S. N., regarding the defence of Mobile in which the following reference is made to a submarine there:

"On or about the 14th, an infernal machine, consisting of a submarine boat, propelled by a screw which is turned by hand, capable of holding five persons, and having a torpedo which was to be attached to the bottom of a vessel and exploded by means of clockwork, left Fort Morgan at 8 p. m. in charge of a Frenchman who invented it. The intention was to come up at Sand Island, get the bearing and distance of the nearest vessel, dive under again and operate upon her; but on emerging they found themselves so far outside of the island and in so strong a current (setting out) that they were forced to cut the torpedo adrift and make the best of their way back. The attempt will be renewed as early as possible, and three or four others are being constructed for the purpose." The submarine boat referred to may or may not have been the *Hunley*. The quotation is cited as a possible part of the record. The statement made to Commodore Hitchcock appears in Series I, Volume 19, Official Records of the Union and Confederate Navies in the War of the Rebellion.

[7] Horace L. Hunley and a crew of seven men were lost when the boat sank in Charleston harbor on October 15, 1863. The names of the seven are given on the monument at Charleston. Hunley is usually referred to as a Mobile resident. In an article on "Mobile in the War between the States," in the *Confederate Veteran* of May, 1916, Benjamin B. Cox, of Mobile, describes Hunley as "a very well-to-do cotton merchant of New Orleans, who had promoted the building of a submarine at New Orleans which, for some reason or other, was not a success." Mr. Cox says that Hunley was prevailed upon to come to Mobile by parties there and arriving at once began the construction of the submarine which bore his name.

The following order is the first reference to the Hunley submarine in connection with Charleston appearing in the official records of the war:[8]

CHARLESTON, S. C., August 7, 1863.

Quartermasters and Railroad Agents on Lines from Charleston, S. C., to Mobile, Ala.: Please expedite transportation of Whitney's submarine boat from Mobile here. It is much needed.

G. T. BEAUREGARD.

The submarine was needed at Charleston, and the need was generally recognized. On August 15, in a communication addressed to "B. A. Whitney, Esq., in charge of the submarine torpedo-boat at Charleston," General Beauregard's chief-of-staff announced:

I am authorized to say that John Fraser & Co. will pay over to any parties who shall destroy the United States steam ironclad *Ironsides* the sum of $100,000, a similar sum for the destruction of the wooden frigate *Wabash*, and the sum of $50,000 for every monitor sunk.

I have reason to believe that other men of wealth will unite and give with equal munificence toward the same end.

At the same time, steps are being taken to secure a large sum to be settled for the support of the families of parties, who, making any attempt against the fleet now attacking our outworks, shall fail in the enterprise, and fall or be captured in the attempt.[9]

The offer thus announced had been made to General Beauregard on August 13 by Theodore D. Wagner, a member of the firm of John Fraser & Co. In the meantime, the little submarine had arrived, or was just about to arrive. She was brought to Charleston on two platform cars,[10] and a week after the offer of big rewards for the destruction of the United States vessels of war

[8] Gen. Beauregard's order regarding the transportation of the boat appears in Series I, Volume 28, Part 2, War of the Rebellion Official Records.

[9] The communication to Whitney announcing the reward appears in Series I, Volume 28, Part 2, War of the Rebellion Official Records. The firm of Fraser & Co. had houses in Liverpool and Charleston. The firm is frequently mentioned in the official records of the war.

[10] The manner of the movement of the submarine from Mobile to Charleston was told to Admiral Dahlgren by ——— Belton, Series I, Volume 15, Official Records of Union and Confederate Navies in the War of the Rebellion.

was nosing about Charleston harbor.[11] On August 23 she went out from Sullivan's Island at sunset, but was forced to return because of an accident. In another week the craft met with her first disaster at Charleston.[12] Lieutenant John A. Payne, of the C. S. S. *Chicora,* had in the meantime been put in command of the submarine and was standing on the boat's top when she went under at the dock at Fort Johnson, James Island. Under date of August 30, 1863, Colonel Charles H. Olmstead, First Volunteers, Georgia Infantry, commanding at Fort Johnson, reported to Confederate headquarters:

> . . . . An unfortunate accident occurred at the wharf yesterday, by which five seamen of the *Chicora* were drowned. The submarine torpedo-boat became entangled in some way with ropes, was drawn on its side, filled and went down. The bodies have not yet been recovered.[13]

One man in Charleston harbor that ill-fated August 29 had good cause for remembering the tragic occurrence. It was Payne's shipmate, Lieutenant C. L. Stanton, C. S. N., of the *Chicora.* That morning the submarine had paid a visit to the *Chicora* and Stanton had arranged to go down under the water with his friend in the diver. Before he was released from duty, however, the *Hunley* had to leave, and Lieutenant Charles H. Hooker, of the *Chicora,* took Stanton's place. The submarine cast off, dived

[11] The earliest reference to the movements of the submarine in Charleston harbor that the writer has found appears in Series I, Volume 28, Part 1, War of the Rebellion Official Records. This reference follows:

> HEADQUARTERS SULLIVAN'S ISLAND, August 23, 1863.
>
> CAPTAIN.—The torpedo-boat has not gone out. I do not think it will render any service under its present management.
>
> T. L. CLINGMAN, *Brigadier-General.*
>
> Capt. W. F. Nance, *Assistant Adjutant General.*

On the same page appears the following:

> SULLIVAN'S ISLAND, August 23, 1863.
>
> CAPTAIN.—The torpedo-boat started out at sunset, but returned, as they state, because of an accident. Whitney says that though McClintock is timid, yet it shall go out to-night unless the weather is bad. . . . .
>
> T. L. CLINGMAN, *Brigadier-General.*
>
> Capt. W. F. Nance, *Assistant Adjutant General.*

[12] Before arriving at Charleston, the boat had already drowned a crew at Mobile.

[13] Col. Olmstead's report is to be found in Series I, Volume 28, Part 1, War of the Rebellion Official Records.

about the harbor for an hour or two, and then moved over to Fort Johnson, where she made fast to the little steamer *Etiwan*. It was when the latter vessel moved off from the wharf that the disaster occurred. Payne, standing on the top of the submarine, escaped a ducking by jumping to the *Etiwan*. Hooker was climbing through the forward manhole. As the *Hunley* sank the manhead closed, catching his foot, dragging him down into the sea. To free himself he was forced to stoop and raise the manhead. One of the *Chicora's* boats picked him up a moment later in an exhausted condition. The submarine with her crew went to the bottom in five fathoms of water.[14]

In a short time the craft was raised and more volunteers from the Confederate ships in Charleston harbor were sent aboard her. Hunley, inventor of the boat, and Lieutenant George E. Dixon, of Mobile, a Confederate officer who had had some experience in operating her, came to Charleston to take charge of the diver.

The next disaster to the submarine occurred while her inventor was demonstrating her diving powers in Charleston harbor. Lieutenant Dixon, Assistant Engineer J. H. Toombs, C. S. N.,[15] and James A. Eason were standing on the Charleston wharf and watched the submarine start out.

> Oct. 15, 1863, the record reads: Raining again this morning and too hazy to get report of the fleet. . . . . An unfortunate accident occurred this morning with the submarine boat, by which Capt. F. L. [H. L.] Hunley and seven men lost their lives, in an attempt to run under the navy receiving ship. The boat left the wharf at 9.25 a. m. and disappeared at 9.35. As soon as she sunk, air bubbles were seen to rise to the surface of the water, and from this fact it is supposed the hole in the top of the boat by which the men entered was not properly closed. It was impossible at the time to make any effort to rescue the unfortunate men, as the water was some nine fathoms deep.[16]

[14] Lieut. Stanton wrote an account of the submarine in the *Confederate Veteran* of September, 1914. In his account, his own narrow escape is chronicled.

[15] The name of Engineer Toombs is printed "Tomb" in the Official Records of the Union and Confederate Navies in the War of the Rebellion. The writer is not aware which spelling is correct.

[16] The record of the boat's sinking is an excerpt from a journal kept at the headquarters of the department at Charleston, which is printed in Series I, Volume 28, Part 1, War of the Rebellion Official Records. The names of the men lost on that occasion are inscribed under that of the inventor on the Charleston monument.

Three days later a diver found the sunken submarine on the bottom of the harbor. When she was raised it was found that the crew had perished of asphyxiation; their bodies "were contorted into all kinds of horrible attitudes, some clutching candles, evidently endeavoring to force open the manholes; others lying in the bottom, tightly grappled together, and the blackened faces of all presented the expression of their despair and agony."[17]

After this tragedy, General Beauregard refused to allow the boat to be used again. However, her retirement was only temporary, as events proved. Special Orders No. 271, issued December 14, 1863, reads:[18]

> First Lieut. George E. Dixon, Twenty-first Alabama Volunteers, will take command and direction of the submarine torpedo-boat *H. L. Hunley*, and proceed to-night to the mouth of the harbor, or as far as the capacity of the vessel will allow, and will sink and destroy any vessel of the enemy with which he can come in conflict.
>
> All officers of the Confederate Army in this department are commanded, and all naval officers are requested to give such assistance to Lieutenant Dixon in the discharge of his duties as may be practicable, should he apply therefor.

If the Confederate submarine went out that night, the official records of the war, either army or navy, make no record of the fact. In the meantime the United States fleet had been ordered by Rear Admiral Dahlgren to take especial precautions against torpedo-boat attacks. By order of December 3, 1863, two monitors were to do picket duty each night, assisted by two tugs and as many armed boats as could be conveniently furnished by the wooden vessels present.

On the succeeding January 7, deserters from the Confederate ranks brought explicit information to the admiral regarding the torpedo-boats in Charleston harbor, leading him to issue the following order:[19]

> FLAG-STEAMER "PHILADELPHIA,"
> OFF MORRIS ISLAND, SOUTH CAROLINA, January 7, 1864.
>
> I have reliable information that the rebels have two torpedo-boats ready for service, which may be expected on the first night when the water is

[17] The quotation is from Gen. Beauregard's account of the submarine.

[18] The order appointing Dixon commander is printed in Series I, Volume 28, Part 2, War of the Rebellion Official Records.

[19] Admiral Dahlgren's order is printed in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

suitable for their movement. One of these is the *David,* which attacked the *Ironsides* in October; the other is similar to it.

There is also one of another kind, which is nearly [20] submerged and can be entirely so. It is intended to go under the bottoms of vessels and there operate.

This is believed by my informant to be sure of well working, though from bad management it has hitherto met with accidents, and was lying off Mount Pleasant two nights since.

There being every reason to expect a visit from some or all of these torpedoes, the greatest vigilance will be needed to guard against them.

The ironclads must have their fenders rigged out and their own boats in motion about them.

A netting must also be dropped overboard from the ends of the fenders, kept down with shot, and extending along the whole length of the sides; howitzers loaded with canister on the decks and a calcium for each monitor. The tugs and picket boats must be incessantly upon the lookout, when the water is not rough, whether the weather be clear or rainy.

I observe the ironclads are not anchored so as to be entirely clear of each other's fire if opened suddenly in the dark. This must be corrected, and Captain Rowan will assign the monitors suitable positions for this purpose, particularly with reference to his own vessel.

It is also advisable not to anchor in the deepest part of the channel, for by not leaving much space between the bottom of the vessel and the bottom of the channel it will be impossible for the diving torpedo to operate except on the sides, and there will be less difficulty in raising a vessel if sunk.

JOHN A. DAHLGREN,
Rear Admiral, Comdg. South Atlantic Blockading Squadron.

The *David,* referred to in the admiral's order, was a Confederate torpedo-boat of another pattern, a cigar-shaped, steam-propelled boat which sat so low in the water that the ironclad parts exposed offered a scanty target. Its torpedo, unlike that of the *Hunley's,* was mounted on a spar extending out from the bow of the boat. On October 5, 1863, it exploded a 60-pound charge of rifle powder under the starboard quarter of the *New Ironsides,* the monster of the United States fleet, jarring her, but failing to do her serious damage. At various times in the *Hunley's* career, the *David* was used to tow the submarine out to its field of operations. The last night the *David* towed her out the torpedo dragged behind the *Hunley* came very near blowing up both boats before Lieutenant Dixon and First Assistant Engineer J. H. Toombs, of the *David,* got the package of explosive clear of the bottom where it had drifted. Toombs, after passing Fort Sumter, let Dixon and his

[20] The second paragraph of the order refers to the *Hunley.*

submarine go, and on his reporting the incident, Flag Officer John R. Tucker of the Confederate Navy refused to allow the *David* to tow her any more.[21]

The real place of the submarine in history rests upon the fact that she was the first diving boat to sink a vessel of an enemy in actual warfare. The *Hunley's* victim was the United States screw sloop *Housatonic,* 13 guns and a crew of 160 men, which had taken up a nightly position opposite Battery Marshall, a Confederate work at the eastern end of Sullivan's Island, her presence there greatly interfering with the operations of the blockade runners.

Operating as a *David,* that is, on the surface of the water and not as a diver—this being by order of General Beauregard—the little vessel cast off her moorings at Battery Marshall early in the evening of February 17, 1864. Her torpedo was carried on a spar projecting forward.

Guarding Breach Inlet, the sloop at anchor swung lazily with the tide. No movements shoreward gave the watchful officer of the deck a hint that danger threatened. The sea was smooth, the moon shining. About 8.45 o'clock, what appeared to be a plank or a log floating in the water was sighted by the officer of the deck, Acting Master J. K. Crosby, and the lookout simultaneously. When first observed it was about a hundred yards distant and approaching. Inoffensive as the object looked, an alarm was promptly given and Captain Charles W. Pickering and his executive officer, Lieutenant Francis J. Higginson, rushed upon deck. As they gave their orders they emptied their pistols at the object. The hurried efforts to save the *Housatonic* were futile. Two minutes after she was first sighted the submarine was alongside. An instant later her torpedo had caught the sloop between the main and mizzen masts giving her a death wound. She sank almost immediately. There was time to lower only two boats. A portion of the crew escaped in these; many more were forced to scramble into the rigging, which was not submerged.

One of the boats pulled for the U. S. S. *Canandaigua,* carrying the first news of the submarine's work. The boats of the *Canandaigua* succeeded in rescuing from the wreck 21 officers and 129

[21] Taken from notes made by Engineer Toombs and printed in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

men. Among the injured was Captain Pickering. The following were "missing": Ensign Edward C. Hazeltine, Captain's Clerk Charles C. Muzzey, Quartermaster John Williams, second-class Fireman John Walsh and Landsman Theodore Parker.[22] They were the first victims of submarine warfare as it is understood to-day.

The submarine went to a watery grave along with the *Housatonic;* years after she was found beside her victim. Her commander and her crew perished with her, and the names of the crew appear under that of Dixon's on the Charleston monument; in fact, one name more than appears in the official records of the navy; the name is that of —— Miller.

The loss of the submarine with her victim was not made known at the Confederate headquarters in Charleston until two days after her achievement. On February 19 Lieut. Colonel O. M. Dantzler, 21st South Carolina Infantry, sent in the following report from Battery Marshall:[23]

LIEUTENANT.—I have the honor to report that the torpedo-boat stationed at this post went out on the night of the 17th instant (Wednesday) and has not returned. The signals agreed upon to be given in case the boat wished a light to be exposed at this post as a guide for its return were observed and answered. An earlier report would have been made of this matter, but the officer of the day for yesterday was under the impression that the boat had returned, and so informed me. As soon as I became apprised of the fact I sent a telegram to Capt. Nance, Assistant Adjutant General, notifying him of it.

Very respectfully,
O. M. DANTZLER,
Lieut. Colonel.

Lieut. John A. Wilson,
Acting Assistant Adjutant General.

(Indorsement)

February 20, 1863.

As soon as its fate shall have been ascertained pay a proper tribute to the gallantry and patriotism of its crew and officers.

G. T. BEAUREGARD,
General Commanding.

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[22] The list of the Union men "missing" is printed in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

[23] Col. Dantzler's dispatch is to be found in Series I, Volume 35, Part 1, War of the Rebellion Official Records.

Reporting to Adjutant General S. Cooper at Richmond in a dispatch of February 27, General Beauregard said:[24]

Prisoners report that it was the United States ship of war *Housatonic*, 12 guns, which was sunk on the night 17th instant, by the submarine torpedo-boat, Lieutenant Dixon, of Alabama, commanding. There is little hope of safety of that brave man and his associates, however, as they were not captured.

A court of inquiry convening on the U. S. S. *Wabash* on February 26, 1864, with Captain J. F. Green of the *Canandaigua* as president, investigated the destruction of the *Housatonic* by the submarine, reporting on March 7. The report of the court, being the result of a formal investigation, constitutes a thoroughly authenticated page of history. The findings follow:[25]

First. That the U. S. S. *Housatonic* was blown up and sunk by a rebel torpedo craft on the night of February 17 last, about 9 o'clock p. m., while lying at an anchor in 27 feet of water off Charleston, S. C., bearing ESE., and distant from Fort Sumter about 5½ miles. The weather at the time of the occurrence was clear, the night bright and moonlight, wind moderate from the northward and westward, sea smooth and tide half ebb, the ship's head about WNW.

Second. That between 8.45 and 9 o'clock p. m. on said night an object in the water was discovered almost simultaneously by the officer of the deck and the lookout stationed at the starboard cathead, on the starboard bow of the ship, about 75 or 100 yards distant, having the appearance of a log. That on further and closer observation it presented a suspicious appearance, moved apparently with a speed of 3 or 4 knots in the direction of the starboard quarter of the ship, exhibiting two protuberances above and making a slight ripple in the water.

Third. That the strange object approached the ship with a rapidity precluding a gun of the battery being brought to bear upon it, and finally came in contact with the ship on her starboard quarter.

Fourth. That about one and a half minutes after the first discovery of the strange object the crew were called to quarters, the cable slipped and the engine backed.

Fifth. That an explosion occurred about three minutes after the first discovery of the object, which blew up the after part of the ship, causing her to sink immediately after to the bottom, with her spar deck submerged.

Sixth. That several shots from small arms were fired at the object while it was alongside or near the ship before the explosion occurred.

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[24] Found in Series I, Volume 35, Part 1, War of the Rebellion Official Records.

[25] The report of the court of inquiry is to be found in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

Seventh. That the watch on deck, ship, and ship's battery were in all respects prepared for a sudden offensive or defensive movement; that look-outs were properly stationed and vigilance observed, and that officers and crew promptly assembled at their quarters.

Eighth. That order was preserved on board, and orders promptly obeyed by officers and crew up to the time of the sinking of the ship.

In view of the above facts the court have to express the opinion that no further military proceedings are necessary.

Rear Admiral Dahlgren was impressed by the achievement of the submarine. "I desire to suggest to the department," wrote that officer to Gideon Wells, Secretary of the Navy, "the policy of offering a large reward of prize money for the capture or destruction of a 'David'; I should say not less than $20,000 or $30,000 for each. They are worth more than that to us."

The destruction of the *Housatonic* by a torpedo-boat filled Charleston with a new hope. Said the *Charleston Daily Courier* on February 29, 1864: "This glorious success of our little torpedo-boat, under the command of Lieutenant Dixon, of Mobile, has raised the hopes of our people, and the most sanguine expectations are now entertained of our being able to raise the siege in a way little dreamed of by the enemy."

Some notes made during the war bearing upon the submarine and her commander by Engineer Toombs, who, as already indicated, had some experience with the craft, deserve perpetuation as a part of the story of her career.[20]

Lieutenant Dixon, he wrote, was a very brave and cool-headed man, and had every confidence in his boat, but had great trouble when under the water from lack of air and light. . . . . She was very slow in turning, but would sink at a moment's notice and at times without it. The understanding was that from the time of her construction at Mobile up to the time when she struck the *Housatonic* not less than 33 men had lost their lives in her. She was a veritable coffin to this brave officer and his men.

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[20] Engineer Toombs' notes are found in Series I, Volume 15, Official Records of the Union and Confederate Navies in the War of the Rebellion.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

PREPAREDNESS—A VITAL NECESSITY[1]

By LIEUT. COMMANDER JOHN P. JACKSON, U. S. Navy

I. WHY IT IS ESSENTIAL

The present great world war has emphasized the fact that the survival of the fittest is as much a law of nature at the present stage of civilization as it was in prehistoric days. It applies to the nations of the world to an extent even greater than to individuals. There is no place in the present order of things for a weak nation. The only security is in strength—such strength as to be immune from attack.

As long as there was no open rupture between the great nations of Europe and the balance of power was maintained, the smaller states existed in precarious security; for every small state was so bound up with the policies and interests of the great ones that each was actually under the protection of some one or more of its powerful neighbors. A strong nation whose interests conflicted with those of a small neighbor was restrained from open acts of violence by other great nations which, in the interest of balance of power, could not afford to allow the small state to be crushed. For this reason alone the small states were permitted to exist in fancied safety, based upon treaties between the great powers, such as that guaranteeing the neutrality of Belgium.

[1] AUTHOR'S NOTE.—This article was written in December, 1915, while the author was in Europe. Due to his absence from this country, there was great delay in getting the article censored, and in obtaining permission to publish it. Naturally much has taken place during the interval affecting the subject treated, as, for instance, the mobilization of the militia; the passage of the naval and military appropriation bills; the starting of a census of civilian corporations capable of producing war materials, etc. In order to obviate the necessity of resubmitting the article to the censor, with a consequent further delay, it has been thought best to publish it as originally written.

The condition was manifestly one of very unstable equilibrium, and needed but a break between any two of the great European powers to involve all the small states in the greatest peril. The unstableness of the equilibrium has been fully appreciated by the statesmen of Europe for years. It was merely a question of when one power or group of powers considered itself strong enough to issue from the struggle successful that the equilibrium would be destroyed and the world plunged into the greatest war of all time.

What, then, would be the fate of the weak states? Would treaties remain inviolate and their rights be respected while the giants were at death grips? These questions have already been answered, not only in Belgium, but with equal force in the Balkans. Is it to be supposed that these small states desired to be swallowed up in this great war? They were forced, and are being forced by threats, bribes, and pressure of various sorts, to take sides. The only small nations in Europe who have thus far kept clear are those who did not happen to be in the path of the belligerents, or whose natural topographical strength was their protection. It has not been any respect for their rights, even when guaranteed, which has prevented their violation; the only consideration which governs is whether the plans of a belligerent can be furthered by such violation, without risking losses out of proportion to the advantages gained.

The spirit of the world has undergone a radical change since the war began; might is right, and will doubtless remain so for generations. Woe to that nation which shall have been fortunate or unfortunate enough not to have been drawn into the present conflict, if it fails to take the lesson to heart in a vigorous and well-directed effort to get ready, and shall be found unprepared at the end of the present conflict. The day has passed, if it ever existed, when a people can consider itself immune from war merely because they do not desire it. War may be forced upon them on a trivial pretext, by an aggressive and covetous rival who feels confident of success. When a nation is prepared, and stands ready to go to the extreme of war to attain its ends, diplomacy and all other means fail, and war can only be avoided by the humiliation and concessions of its rivals.

Such was the case at the time Bosnia and Herzegovina were annexed by Austria, which, backed by Germany, was ready to go to the length of war to achieve her purpose. Russia was un-

prepared and not willing to go to that length. When Russian diplomacy failed she was forced to submit to humiliation in the eyes of the world, and Austria accomplished her designs. A similar situation preceded the present war.

It seems unnecessary to cite more than these recent crises to carry the conviction that it is beyond the power of any nation to avoid war under all conditions. It is puerile and foolish to assert that a nation can maintain a policy of peace towards all others with the certainty of avoiding war. Such a policy is a policy of weakness, and weakness has never prevented the encroachments of the strong.

Every nation has certain policies and interests vital to its welfare which, from their very nature, are bound to conflict with those of other nations. Some, at least, of these are of such a character that they can under no circumstances be submitted to arbitration; to cite but two examples—our own Monroe Doctrine, and Japan's recent demands on China. Both of these policies bring the nations standing back of them into direct conflict with the greatest powers of the world. And yet neither nation, in case of friction, could contemplate submitting these policies to arbitration, for the reason that policies of this nature, however vital to the nations concerned, could not be sustained under the generally accepted rulings of international law. What, then, will be the result if some other nation ventures to challenge such a policy? From its very nature, compromise is impossible. The nation whose policy has been challenged is suddenly brought face to face with a situation in which the only alternatives are to fight in its defence or to renounce it.

Suppose, in the case of a particular policy which has been challenged, the government concerned decides that, while the policy is of importance, it is still not worth the tremendous sacrifices and losses which would be entailed by war, and renounces it. Where will this eventually lead? Will not the next nation with which friction arises be led to believe that a blustering attitude can compel a government which has once yielded to yield again? Weakness and yielding do not settle questions; they merely store up trouble for the future. A nation which attempts to settle its foreign complications in such a manner will eventually be stripped one by one of all rights vital to its welfare, will lose its prestige, and, humiliated and despised in its policy of unpreparedness, due

to the delusion that it could always avoid fighting, finally fall an easy prey to the first powerful nation which attacks it.

China is a living example of a large nation with unlimited latent energy and great resources which, through supineness and failure to keep pace with the times, has allowed itself to degenerate into an inert mass, lacking in dynamic force and ability to defend itself. As long as the great nations of the earth were at peace, the integrity of China was assured. Each was careful to see that no other secured special influence in China by aggressive action, and she was for the time secure, even in her weakness. But no sooner had the present conflagration engrossed the attention of the great nations of Europe than China's false security vanished. In vain she appealed to the powers which guaranteed her integrity. These were unable to divert forces from their own struggle to back up a protest, and China, defenceless and helpless, was forced to sign away its sovereignty. Such a lesson should be an unanswerable argument to those who obstinately and fatuously maintain that trained military forces and preparedness are useless to a nation which has no intention of going to war.

Modern science and invention have annihilated space; and isolation, which a century ago spelled security, is in the present day no serious obstacle to invasion, when even submarines, the most restricted units of the fleet in radius of action, have now an endurance sufficient to carry them across the Atlantic. As to the disinclination of possible enemies to send large forces to our shores, what have they to fear, if they have secured command of the sea by the destruction of our fleet? In the present conflict the Allies have secured such complete command of the sea, that enormous numbers of men have been brought half way around the world to fight on the battlefields of Europe. From every quarter of the globe they have been quietly assembled—from Australia, New Zealand, Canada, Asia and Africa—with hardly so much as the loss of a transport.

Our fleet can only be certain to prevent invasion if it is superior to that of any possible enemy. As it is not, we must venture to inquire how we propose to meet an oversea expedition and prevent its landing. Twenty-nine thousand mobile troops in the United States, a few others scattered as far away as the Philippines and the Hawaiian Islands, no reserves, no organization for securing them, obsolete coast defence guns outranged by the guns of mod-

ern fleets, and even the location of these accurately known to foreign general staffs, sufficient ammunition only to fight these old guns forty minutes, is not a particularly encouraging array of facts.

Probably never in history has a country received such a salutary warning, and had such an advantageous opportunity to retrieve its errors. While the nations who may hereafter threaten us are absorbed in a life and death struggle, and are unable to interfere with our preparations or strike us before they are well under way, we have an opportunity to build up an impregnable defence, utilizing the lessons and experiences of the present war as we develop it.

Since the Civil War the people of the United States have become so engrossed in their own affairs that they refuse to be diverted by what they have come to consider extraneous matters. To the average American, occupied with his daily life and interests, war seemed a very remote contingency. Living in comfortable isolation, they paid no attention to what was going on in Europe, and utterly failed to realize the significance of the enormous armaments being built up. All Europe understood the drift of events and saw the inevitableness of the present conflict. These huge armaments had not been created without purpose, and were not being supported for empty show. It was America alone which was astounded when the storm broke. Imbued with such theories as that war with modern appliances would be so terrible that it could never be endured, that money would not be forthcoming to finance it, that civilization had progressed too far to permit it, that in any case, if we were threatened, a million citizen soldiers would spring to arms over night, and, above all, misled by the voluble utterances of impractical dreamers who preached universal peace, the majority of Americans were glad to be persuaded to the most comfortable and convenient beliefs.

Wars which had taken place in recent years were either amongst the smaller nations, or were so remote as not to create much impression. People's daily lives were not affected, trade was not interrupted, and the influx of tourists into Europe was not interfered with. Knowledge of military matters amongst the people at large is nil; they have no interest in such affairs, and no desire to know about them. The bulk of the people do not come into contact with our naval and military establishments; there exists the strangeness of unfamiliarity concerning our fighting forces.

How different in the countries of Europe, where not a family but has some member in one or other branch of the service! A rather general opinion, even amongst intelligent business men, seems to exist that all money spent upon the army and navy is so much money wasted and diverted from useful purposes. It is a sensible business precaution to insure against fire and theft, but to insure the nation against the incalculable losses and indemnities contingent upon an unsuccessful war is not considered. It is impossible to say how often already even our modest navy has prevented the dread calamity. Without it how could we have passed through the numerous crises of the last few years, avoiding war?

The public must be aroused from its lethargy of indifference and educated in military matters. It must be brought to understand the various foreign policies of our government; wherein they bring us into conflict with other nations; and how easily a war can be forced upon a country, however unwilling. Then the need for an adequate defence will be apparent and the very best possible scheme of defence will be demanded. It is late, but the sooner we get started upon the building up of a sane system of defence for the safety of the nation, the better our chance of success. No halfway measures suffice nor should be tolerated; we should have the most complete system of defence it is possible to devise. If we have profited financially while the nations of Europe have been engaged in this death struggle, a part of this profit should be put into armament rather than that the whole be lost, after the war is over.

For let us not imagine that we shall be immune from attack after the present war is over, on account of the exhaustion of all our possible enemies. There is no greater fallacy than that a victorious nation is weak and exhausted at the end of a successful war. Financially, possibly yes, although even this will be partially recouped by the war indemnity exacted from the defeated enemy. But in a military sense, a victorious nation has at its disposal a well-organized, experienced and seasoned army, tried out by war itself; and, from present indications, its navy will be larger, more powerful, and better trained than it was when the war began. This was true of our own country at the close of the Civil War, when not a nation of Europe felt disposed to oppose our will. Unfortunate. then. the nation which has neglected to prepare for

the issue. What a temptation it would be to the country with such a powerful force at its disposal to turn it for a brief period against an easy prize, before disbanding it! It would add but a few short weeks to a war which had already lasted for years, and what a harvest would be reaped, with almost no effort, in the form of huge ransoms for defenceless cities!

One may well ask if the spirit of '76 is dead in the land; whether the heritage which our fathers won by the expenditure of their life's blood is to be wrested from us by the first aggressive enemy who covets our possessions. And yet there is nothing to prevent this happening. Our fleet is not strong enough to cope successfully with that of either of the two greatest naval powers of the world.

The present war is a most convincing proof of the incalculable value of command of the sea. Having it, the Allies can send troops where they wish. Not having had it, we need hardly ask what would have been the outcome of the present struggle. If England, with her overwhelming fleet, had not entered the war, the entire coast of France would have been at the mercy of her enemies. These could have landed when and where they chose, and their point of attack would not have been known to the French until they struck. Having a long frontier and coast line to defend with an army inferior in numbers to that of her enemy, she could not hope to ward off an invasion; for if she concentrated at one threatened point, the enemy, with his surplus of troops, had but to select another point of attack. With our long, vulnerable coast line, abounding in deep, spacious bays and sheltered landing places, our situation is the same, only much more perilous.

Should our fleet be defeated upon the high seas or bottled up, one of which events must certainly happen if opposed to a hostile fleet 50 per cent greater, we have no army to oppose a landing, and it would be long before even raw troops could be gathered, during which time incalculable damage could be done, if, indeed, we were not forced to sue for peace. If Russia had had command of the sea in her war with Japan in 1904-1905, the latter would have been starved out and unable to use her large, efficient army in aggressive action.

But in spite of the admitted importance of command of the sea, every great war has been decided in the last analysis by the land forces. The first step is to secure command of the sea, and the second, to land an army of invasion and strike at the heart of the

opponent. The army is essential to bring the war to a decisive termination, and reap the fruits of victory.

If, in case our fleet were victorious, we did not desire to press our success home, it may be claimed that we would have no need of an army. As stated, however, the chance of our fleet being victorious, in the case of at least two possible enemies at present, and in the future possibly more, is small; and we cannot expect our enemies to be as forbearing as we might be under the circumstances. Unless, therefore, our fleet is so far superior to that of every possible enemy as to guarantee us against defeat on the sea, we need an army. Even in such a case, we must consider the possibility of having two or more enemies allied against us. In every aspect of the situation, therefore, an army is essential to our country, as it is to every nation which expects to defend itself against aggression, and to maintain its dignity and honor. England considered her navy sufficient, and thought that she would never have need of a large military force. She definitely elected not to be a great military power. If England had had an army and a trained reserve as large as France or Germany and ready to take the field as promptly, it is most probable that the present war would not have occurred or would have been brought to a successful issue by the Allies before this.

The most discouraging condition with which we have to deal is, as stated, the complete indifference of the public to military matters, their ignorance of the first principles of military science, and their disinclination to face or intelligently investigate facts known to the people of every other great nation. The possibility of our ever being involved in a great war was not only not seriously considered, but was too often dismissed as quite absurd. Until the present war broke out, it is safe to say that the majority of American people honestly believed that we would never again have war. The opinions of the few who thought otherwise were unheeded. They refused to look beyond their own noses and see what was happening in the rest of the world, and how it might affect their own country. The result of a local election and the latest baseball scores were topics which interested them; whereas such a fact as that Germany had increased her standing army by 20 per cent, and France had been obliged to meet this by extending the term of service in her army from two to three years, passed unheeded. The meaning of such a portentious event was not

inquired into or discussed. It had nothing to do with the daily lives of 100,000,000 people on another continent.

Judging from the past, it is to be feared that few are even now considering what is likely to happen to our country in the near future. Is it not at least reasonable to expect every patriotic citizen to do a little thinking and attempt to understand the significance of events in this greatest crisis in the history of the world; to form his own opinion as to how his country will be affected, and to consider what measures should be taken to insure its security? We have gotten into a rut and have literally gone to sleep there, while events are brewing which may mean grave disaster. It is high time to shake off apathy and self-engrossment. The country must arouse itself to the danger which threatens, but which appears to be unrealized; or the penalty paid will be a heavy one.

Considering area, population, wealth and natural resources, the United States is indisputably the most powerful nation in the world; but—and this "but" is a very great one—the power is latent. It is there, and exists in very real form, but it must be developed, organized, put into effective condition for use, and, above all, infused with the proper spirit and morale. Are we willing to admit that the spirit is lacking? We have men for our armies—almost unlimited numbers of them—and the very best in the world. But they must be trained. We have unlimited wealth, and manufactories for the supply of everything we need. But they must be organized and large reserves of material collected—material which cannot be manufactured in a day—as the Allies have found out, greatly to their cost. We have natural resources in superabundance—everything we need for the supplying of armies and fleets, from coal and oil for fuel, metals of all kinds for arms and ammunition, to livestock and grain for food, and material for clothes. But the output must be regulated and controlled, so that the proper proportions of each may be produced, and diverted into the proper channels of delivery. Our railroads are extensive and efficient, but there must be plans for putting them on a war basis, tentative schedules arranged, sufficient rolling stock provided, and places of concentration selected for the assembling of enormous bodies of men, with the vast amount of accompanying material.

There is no secret about such necessities, and they are matters upon which the great general staffs of Europe have been concen-

trating their efforts for years. Mobilization alone is a gigantic task, after all the preliminary preparations have been made with the greatest care and forethought, and it must be worked out in every possible detail. Nothing must be overlooked, or disorder, confusion and congestion will result.

But in order to work out plans of mobilization, it is necessary to have something to mobilize, and something which, when mobilized, will be able to act effectively. Have we anything to mobilize or which can act effectively when mobilized? Picture the difficulty of working out plans for mobilizing 1,000,000 or 2,000,000 green and untrained recruits, even if we could get that number in any reasonable time; which must include, of course, equipping and supplying them with material which at the present time does not exist. And yet that is the number of troops we would need at least, if seriously invaded, and we would need them quickly. The standing armies of Europe numbered 600,000 or 700,000 men, and the reserves immediately available trebled that figure. The speed with which these huge forces were mobilized upon the respective frontiers—making due allowance in our case for the time needed by an enemy to secure command of the sea, and transport troops, already embarked, to our coasts—give us a basis upon which to estimate how quickly our army will be needed. Not much time for training, certainly, nor even for mobilization, unless definite plans have already been made.

Undoubtedly many will scoff at the possibility of such rapidity, when an invasion of our country is involved. They have but to consider what has actually been done in the way of mobilization and transportation of troops, and to bear in mind that many things which to the unsophisticated seem impossible are but mere matters of the execution of the details of a carefully prepared plan, to a well organized and efficient enemy.

II. How to Accomplish It

Let us see what must be done, then, to prepare ourselves for any eventuality. Consider the land forces first. We should have a standing army of at least 400,000 men; call it what you will—continental army, national defence, school for military training, or any other euphemistic designation. But enlist every man for two years, and give him the course of training undergone by the

regular army, including all that has been learned to date from the present war. Put this army under canvas and keep the men in the field for the greater part of the enlistment. At the end of two years they will be seasoned, trained and disciplined troops upon whom reliance can be placed. This army may be quite separate from the regular army, which can be kept as small as the duties it has to perform will permit, but it must be under the direct charge of officers of the latter, and subject to the same regulations and discipline. No term of one month a year will suffice to produce a disciplined and seasoned force, or even teach them the first rudiments of military training. They cannot even get into the atmosphere of a soldier's life in that time.

Washington wrote in a letter to Congress in 1776: "To bring men to be well acquainted with the duties of a soldier requires time. To bring them under proper discipline and subordination not only requires time, but is a work of great difficulty. . . . To expect, then, the same services from raw and undisciplined recruits as from veteran soldiers is to expect what never did and perhaps never will happen." The force of these words is of even greater import in this day of highly complicated military science than it was in 1776.

After this two years of regular army life, the men discharged, 200,000 per year, should pass into a first reserve for three years, during which period they should be recalled to the colors for one month each year, for grand maneuvers. In addition to keeping the men fit and efficient, this will serve the purpose of training the officers in the handling of large bodies of men, such as our country has not seen since the Civil War. During that war, both sides being equally inexperienced, neither was at a particular disadvantage, and each acquired experience at the same time, the training of officers and men taking place *after* the war commenced. Against a foreign enemy previously trained this is, of course, now impossible; military operations move too fast. This trained reserve of 600,000 men, no account being taken for the moment of natural casualties, will give the country a ready and effective force of 1,000,000 men who can be mobilized in a matter of hours.

Following the three years in the first reserve, there should be a period of five years in the second reserve, the men to remain in organized units, which should be called together for a week or two each year, in order to keep in touch with, but not take part neces-

sarily in, the grand maneuvers. This gives a reserve of another 1,000,000 men which can be called together at short notice. Even after this, the men who have done service should never be lost track of, but kept assigned in regular organizations, under such regulations for assembling as may be deemed fit. An almost unlimited reserve is thus created. By calling out the first five years of what may be called the third reserve, approximately another 1,000,000 men are added to the colors; and so on, in the same manner as the classes are called in the armies of Europe. This would make it possible to raise an army of 4,000,000 trained men of military age, if need be.

To consider now, for a moment, the advantages and disadvantages of such a system. First, the expense will be considerable; but trifling compared to the losses and indemnity consequent upon a disastrous war. Is it not good insurance? The men of the reserve should be paid a small pension or retaining fee, depending upon the length of time they serve with the colors each year, to insure their remaining fit and ready. This would not be exorbitant. Second, it would be a distinct advantage to the country at large to submit a certain proportion of its young men each year to this education and training. They would become imbued with ideas of patriotism and subordination which would certainly make for better citizenship. The pursuit of civil vocations would in no way be impaired. The average boy finishes high school at the age of 17 or 18. Before settling down to a civil vocation, then, they would have this two years' training to round out and develop them, physically, mentally and morally. It can well be looked on as a kind of post-graduate or university course, which would not be open to many of them in any other way. Lastly, the feeling of security in having such a body of trained men ready to respond to the country's call should certainly outweigh any considerations of expense; and in any case, as mentioned above, this expenditure should be regarded in the light of insurance. It is not likely that any nation would feel inclined to send their troops 3000 miles overseas, with the knowledge that they were going to be met by, if necessary, 4,000,000 trained men.

As to the navy, it is better off at the present time than the army, but it is far from large enough to guarantee our coasts absolute security from aggression. In the main, it is not so much a question of what we have as what we have not. Our fleet is not

a well-rounded one. Certain types and units are entirely lacking. Our latest superdreadnoughts are as powerful as any ships in the world and as good, except, perhaps, in the matter of speed. Our flotilla of destroyers is fairly numerous, and efficient. But we have not a single battle-cruiser, no scouts, except old ones of far too slow a speed, few modern submarines, none of which at present in commission are of the largest type, and practically no aeronautic corps.

The present war has demonstrated the value and indispensability of every type we lack. No time should be wasted in acquiring them. The proportion of units of each type of ship needed in a well-rounded fleet must be determined by careful study, and a definite building program laid out for a number of years ahead. Such a building program always is laid out by the administrative authorities of the navy, and recommendations as to the types needed made. But, unfortunately, it is too often cut into and cut down by Congress. The result is that, when it is known that an appropriation of a certain sum only can be secured for naval construction, the less important types must be scratched from the program, and often, alas! some of the important units also. Consequently no definite policy in the development of the fleet can be carried out. We must take what Congress will give us from year to year, and the result is an ill-balanced fleet, in which the important units somewhat approximate in number what we would like to have; and the less important, but still much-needed other types are, in some cases, entirely lacking. This is no time for parsimony in naval appropriations. The opinion of our experts must be taken as to how many and what types of ships are needed, and the means found for acquiring them without delay. When it is considered that it takes three years to build a superdreadnought or a battle-cruiser, the time required to develop a fleet of modern ships is evident. There is no time to waste.

The matter of officering and manning a greatly enlarged fleet does not present such a difficult problem as the officering and raising of the necessary land forces, for the reason that the numbers required are so much less. Several of the states possess excellent naval militia organizations, which will furnish very good material, and there is the merchant marine, small as it is, to furnish its limited quota. The naval administration is naturally bound to see to it that officers and crews are provided for all ships authorized

by Congress; but in case of threatened war there must be a substantial reserve to fill the gaps and provide for the commissioning of ships kept in reserve in time of peace.

Of all branches of our naval and military services, the one which is conspicuously the weakest is that of aeronautics. While foreign nations are counting their aeroplanes and pilots by the thousand, to say nothing of dirigibles, we have but some dozen seaplanes in the navy and about an equal number of aeroplanes in the army, mostly old and worn machines. Dirigibles there are none in either arm of the service. In the present war the belligerents have repeatedly used 35 and 40 machines, and even more, in a single raid, or nearly twice the total number we possess. They are all constructing and placing contracts at home and abroad for every machine they can get, and the importance of aeronautics is the one thing which has most deeply impressed itself upon all who have followed the operations. A large and efficient air service has come to be recognized as one of the most vital adjuncts to both fleet and army. It is unnecessary to go into the multitude of uses to which aircraft are being put, such as reconnaissance and scouting, spotting and controlling artillery fire, raiding and bombarding, dispatch carrying, etc. Suffice it to say that if either belligerent had been notably weak in aeronautics on the west front, his line would, in all probability, have been pierced ere this. The marvelous German advances on the east front early in the war were greatly aided and quickened by their air ascendancy in that theater. The Russians were prevented from observing what concentration of troops the enemy was making, and hence did not know what point of the line the enemy was about the strike; whereas the Germans were kept fully informed of every movement of Russian troops.

Aeronautics is no less important to the navy. When it is considered that an aircraft can travel three to four times as fast as a scout cruiser, an idea can be gotten of their respective radii of action in an equal period of time. Scout cruisers and destroyers have been called the "eyes of the fleet." Aircraft very much more deserve this designation, and a fleet is verily blind which is without them.

An aeronautic corps can no more be created on the eve of a war than can an army or a navy. True, certain kinds of aircraft can be constructed very much more rapidly than any type of ship; but

the number of aircraft required must be borne in mind, and the vast amount of spare parts and reserve material. To take but a single item—the most important—aeroplane engines. These engines are subjected to great wear and tear and have a life of but 25 hours. That is, after 25 hours of actual running, they must be completely broken down, bearings tightened, parts renewed, and generally overhauled. Another engine must be ready for the aircraft, or it remains idle. And so on. A vast store of material must be accumulated in advance.

But this is far from being the most serious aspect of the situation. Material can be constructed under pressure, but pilots cannot be trained under pressure. Months of study, hard work and practice are required to turn out an efficient air pilot. The number of qualified pilots which we at present have in the army and navy is so small as to be entirely negligible in time of war. At this very moment the crying need of every nation engaged in the present war is for air pilots. Some of them are so lacking in skilled personnel that they have been obliged to borrow those of their allies. Can we count on borrowing, and would we desire to do so?

Furthermore, it is not only pilots who must be trained for aeronautic service, but the observers, who are an essential part of aeronautic personnel, must be equally highly trained in their part of the game. To a layman it might seem that any person with good eyes would do for an observer. This is far from being the case. The conditions governing observations from the air are so different from anything to which men are accustomed in ordinary life, or even in military and naval life, that men must adapt themselves to them by practice and experience. Aside from the difficulties of recognizing definite objects which can afterwards be identified on the map, estimating distances, numbers of troops, etc., it must be remembered that all objects of military importance within the enemy's lines, such as trenches, batteries of artillery, magazines, supply depots, and the troops themselves, are carefully concealed and screened from the observation of aircraft. One has but to examine a photograph taken from an aeroplane of an enemy's position to become convinced of this. Unimportant objects often stand out prominently, while lines of trenches can be traced with difficulty, and battery positions, etc., are probably indistinguishable. Flying through the air at a speed in excess of 60 miles per hour, at a great height, with possibly hazy atmospheric condi-

tions, and hampered by the vibration of the machine, it can be appreciated that the observer's task is no easy one; and an untrained man might probably make an extensive flight over hostile territory without bringing back a single item of definite military information; or, even worse, bring back incorrect information, due to faulty deductions.

It becomes clearly evident, therefore, that there is not a single billet in the military, naval and aeronautic services which can be filled by an untrained man. The sooner this is realized by the people of our country, and by those who have the control of our national affairs, the sooner steps will be taken to secure an ample trained personnel to compose our fighting forces. And if the necessity for arduous and protracted training is not realized, the forces we may be able to get together on the eve of war will be little better than a mob. Spirit, courage, and determination will go for nothing at that late hour, and the lives of our country's sons will be uselessly sacrificed.

Not only is it necessary to prepare and increase our existing fighting forces and provide and train the personnel which will be required, but it is no less vitally necessary to develop and organize our vast latent resources. General Upton, one of the great strategists of our army, of the days following the Civil War, said: "With the greater mass of people, who have neither the time nor the inclination to study the requirements of military science, no error is more common than to mistake military resources for military strength, and particularly is this the case with ourselves. All our wars have been prolonged for want of judicious and economic preparation, and often, when people have impatiently awaited tidings of victory, those of humiliating defeat have plunged the nation into mourning. The cause of all this . . . lies partly in the unfounded jealousy of not a large, but even a small, standing army; in the persistent use of raw troops; in the want of an expansive organization, adequate for every prospective emergency. . . . No one can study the subject without acknowledging our military policy is weak, and that it invites and inevitably produces wars. Ultimate success in all our wars has steeped the people in the delusion that our policy is correct. . . . Again, our remoteness from powerful nations has led to another delusion—that we shall forever be free from foreign invasion."

Let the " mass of people " ponder these words well; they are as true to-day as the day they were written. It must be borne in mind that we have not fought a war with a first-class military power for over 100 years. In that day we were not immune from invasion and the burning of our national capital. Would we be now, when modern science has broken down our barrier of isolation, and rendered oversea transportation of military forces rapid and possible upon a great scale? In this age we would not be so lucky as to issue from a conflict with " ultimate success." With the enormous, highly-trained armies of the present day, and the rapidity with which organization and carefully prearranged plans would bring them upon us, it would be over before we could teach our " raw troops " how to fight, or mobilize our resources. It therefore behooves the " mass of people " to find " the time and the inclination to study the requirements of military science "—at least sufficiently to realize the vital necessity of preparedness, and to demand that we prepare to the very best of our ability.

The mobilization of resources should be as complete and as thoroughly planned as the mobilization of the fighting forces themselves. All factories and works for the production of military supplies of every description, and those capable of conversion to such production, should be recorded and plans made for their expansion and control by the government in time of war. These plans should indicate the maximum output which is expected from each, and the number of workmen required. They should also provide for obtaining these workmen and for the uninterrupted supply of raw material to each factory.

In the present war the consumption of ammunition has far exceeded the wildest calculations. In the English attack at Neuchapelle, in the spring of 1915, the consumption of ammunition exceeded that of the entire Boer War; and on occasions a single piece has fired as much as 500 rounds in a single day. It is no wonder, then, that all the belligerents were taken by surprise in the matter of ammunition supply, and suddenly found that their reserve was being cut into and reduced to a dangerous degree. In modern warfare an army has literally to blast its way along with artillery. Its infantry can advance only so far as the artillery has been able to clear the ground. Guns of all sizes and various degrees of mobility are needed in much greater proportion to numbers of infantry than in any previous war; and these must

be, not generously, but lavishly, supplied with ammunition. In the English attack at Neuchapelle, it is said to have been failure of the ammunition supply which prevented them from continuing their advance and probably securing a decisive result. This in spite of the enormous consumption mentioned above, which, before the action, was undoubtedly thought to be far in excess of probable needs. The result of the Russian shortage of ammunition was only too disastrously shown when, in a few short weeks, they lost everything they had won in a year of fighting and much of their own territory besides.

The vital need of artillery having been conclusively demonstrated, it becomes incumbent to provide at once an adequate number of guns, especially of large caliber; not in proportion to the number of troops in the army on a peace footing, but in proportion to the number of men who will be actually put in the field in time of war. Artillery is one item of military supplies which it is not possible to create at short notice. It takes months to construct a heavy gun when the plant and all the machinery are already at hand. The construction of plants and machinery, and the manufacture of the required number of guns, is, therefore, part of the preparation in time of peace, and must be undertaken a long time in advance, in order that the full strength may be ready the instant war is declared. It will be needed in the initial operations, and its availability or absence will certainly determine the preliminary events and affect the entire future course of the war. At present we have none of the heavy artillery pieces which are being used by all the belligerents—not in fixed fortifications, but in the field—and which have exerted such a decisive effect upon operations on all fronts; and our supply of even the smaller field-pieces is deplorably inadequate.

Nor is it only in field artillery and heavy mobile pieces that we are lamentably weak. There is not a gun in the coast defences of the United States proper greater than 12-inch, if we except the old 16-inch gun at Sandy Hook. This means that a fleet of modern superdreadnoughts, armed with 13.5-inch, 14-inch and 15-inch guns can take position in absolute security out of range of our coast defence batteries and knock these to pieces at their leisure. In view of the demonstrated vulnerability of permanent fortifications to modern heavy ordnance, it is questionable whether we should expend our energies and funds in the construction of

any more of them, or even in the mounting of larger pieces in those already existing. Fortunately, the possibility of transporting and mounting, at any desired point, howitzers and mortars of the maximum calibers has opened up a new field to which serious attention should be given, and which offers a solution to the problem of coast defence, eliminating as it does the enormous expense entailed by the construction of permanent forts. The feasibility of such transportation has been amply demonstrated in the present war, and guns of the largest caliber are actually in use at present behind the trenches in Europe at points where, before the war, there had not been the slightest anticipation that guns would be mounted.

The question of ammunition reserve has been so thoroughly aired in the press during the last two years as to require but brief mention. The fact has been plainly brought out that we had less than an hour's allowance of ammunition for heavy coast defence guns. After the exhaustion of this meager supply the enemy's fleet could steam leisurely in and moor under the very muzzles of our harmless batteries. Not only should an unlimited supply of ammunition be manufactured and stored up for the day of need, but plans must be made for the expansion of our munition factories in time of war, so that an inexhaustible and regular daily output may be assured. Let us not be caught in the situation in which the Allies found themselves recently, but profit in time by their disastrous experience.

The supply of food is one which admits of more exact calculation as to the quantities needed. Whereas the appetite of a gun is most erratic, and it may consume more ammunition in a single day than it has in previous weeks, a man can only eat a certain amount a day, but eats it regularly. It is, therefore, a mere problem of arithmetic, but there must be no miscalculation. An army without ammunition can retreat and gain time until better days, but an army without food ceases to exist. The supply of food must be unfailing and regular, and the system of distribution must be perfect.

The supply of clothing is also a mere matter of calculation. The important thing is to provide the necessary kind of clothes for all conditions of weather and service. Large supplies of suitable warm clothes required by troops living in the open in the dead of winter must be accumulated and stored. Lack of them means

untold suffering, aside from the paralyzing of the troops in a military sense. Men cannot fight effectively unless they are physically comfortable and fit, and free from bodily ills. Many articles of clothing and equipment are not needed under the conditions in which troops live in time of peace. But they must nevertheless be provided in time of peace, and made up in complete outfits ready for issue, or there will be deficiencies and confusion in the hurry of supplying them at the last moment.

The resources and supplies needed by our mobilized and military forces being at hand, it remains to provide means for their transportation, as well as for that of the forces who are to use them, from the localities at which they have been accumulated to the points at which they are to be used. This requires the mobilization of the railroads and steamship lines, as well as vehicles of all other descriptions needed. There is no difficulty in obtaining the names and characteristics of all merchant vessels which would be available to us by commandeering or purchase in time of war. Unfortunately the number is very small, and practically none would be suited to specialized uses, such as repair ships, minelayers, ammunition ships, tenders to destroyers and submarines, and a dozen other types, without extensive alterations. It is not advisable nor necessary to have, in time of peace, the full quota of such vessels carried upon the navy list. The expense would be too great and, as they are not needed under peace conditions, they would be laid up in enforced idleness. But it is most vital that we should be able to lay hands instantly upon the necessary number of auxiliaries, and that these should be converted to the proper uses in the shortest possible time. The peace work, therefore, consists first in the calculation of the exact number of auxiliaries of each type which we would require in time of war, the listing of all merchant vessels available to us, and the selection of those best qualified to fill the rôles to be assigned them. Complete plans should then be made, after thorough inspection, of the alterations necessary to fit them for their projected uses, and the preliminary steps taken to acquire these vessels at the outbreak of war.

As regards the mobilization of the railroads, there must be an inventory of all the rolling stock in the country, its condition and general location. Plans must be perfected for the taking over of the railroads by the government, the suspension of such regular traffic as may be necessary, and the putting into effect of military

schedules. In addition to the movements of troops, munitions and supplies, which of necessity cannot be entirely anticipated until the threatened point is known, there will be a great deal of routine transportation, as of raw material from source of supply to factory, and of finished articles from factory to storehouse, etc. Schedules can be arranged for this latter, and plans made to secure a continuous flow and to avoid congestion. Indeed, even as regards transportation of troops and their accessories, tentative schedules can and should be arranged to cover the most probable contingencies. The most likely points of attack can be determined and plans made for concentrating at those places the required forces. The plans and schedules being numbered, it is only necessary, at the desired time, to order plan and schedule No. — in effect at once, or with such and such variations, for the whole system to be put into instant operation.

Lastly, a study of the railroad maps of the country will readily indicate any areas not properly covered. Although our railway system is very complete, it may be found necessary to supplement it in special localities by the construction of strategic railways, which might be of no value to the ordinary peace traffic of the country. The need of such should be investigated and plans formulated for their rapid construction. It will also be necessary to supplement transportation on ship and rail by an adequate motor lorry organization. With the hundreds of thousands of motor vehicles in our country, there should be no difficulty in requisitioning any desired number of suitable machines. Most of the bodies would have to be removed, however, and replaced, and the construction of the new bodies should be arranged for. Roads in important localities must be kept in good repair, and new ones cut through where needed.

There is one important thing to which strict attention must be paid. In the mobilization of the army, the industrial structure of the nation must not be destroyed nor impaired. This happened in the case of one or more of the European nations, and skilled artisans had subsequently to be sent back from the trenches to take up again the work, which no one else could perform, with the result that many important factories were temporarily tied up and much valuable time lost in the production of war material. Fortunately, we have such a large number of men of military age available that not a single man employed in production for the state need be

taken. There are many industries and factories which must, from their nature, close down in time of war, and those would supply a large number of men. But miners, railroad employees, workers in arms and ammunition factories, etc., should not be disturbed.

To sum up, then, the preparation for war in time of peace should embrace the following: The creation of an army of 400,000 men and a first reserve of 600,000. The organization of all other men who had had service in the army, up to the age of 40, into classes to be called if needed. The maintenance of a powerful, well-rounded navy, including particularly the construction of all types which we lack, or in which we are particularly weak. The manufacture of the necessary number of heavy guns of all calibers, especially large mobile howitzers. The manufacture of an unlimited quantity of reserve ammunition. The formulation of war plans, and of plans for mobilization of the army on different fronts. Same for the navy. Plans for the expansion of all manufactories of war supplies. Plans for the mobilization of our national resources. Plans for the taking over the railroads of the country and putting them on a war basis. Estimates of the number of merchant vessels, automobiles, and other private property which we will need, the steps necessary for requisitioning them, and the plans for their alteration.

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THE CONFEDERATE CRUISER *FLORIDA*[1]

By JAMES MORRIS MORGAN

The *Florida* was the first of the Confederate cruisers built in England during our Civil War. The earliest name given to her was *Manassas,* but as there was already a small ram of that name in the Confederate service, it was changed to *Oreto;* and, under that name, by direction of Captain James D. Bulloch, C. S. N., formerly a lieutenant in the United States Navy, and an uncle of ex-President Roosevelt, she sailed from Liverpool in command of Captain Duguid, an English merchant captain, under the British flag, on March 23, 1862. Both American and British authorities suspected her real character, but as she carried neither guns nor ammunition, she was allowed to escape. She was a trim little yachty-looking, bark-rigged sloop-of-war, very fast under sail and also, for that day, under steam.

On April 28, 1862, the *Oreto* arrived at Nassau, N. P., and was immediately seized by the British man-of-war *Bull Dog* as a lawful prize under the Queen's proclamation of neutrality; but she was subsequently released, as nothing contraband was found on board of her. She was again taken possession of by H. B. M. S. *Greyhound,* and, two days afterwards, set free once more. At the instigation of the American consul she was again seized—this time by order of the British authorities in the Bahama Islands, and the case went to trial before the civil courts, who ordered the ship to be set free.

Captain John N. Maffitt, C. S. N., formerly a lieutenant in the United States Navy, then in the port of Nassau in command of the blockade runner *Nassau,* took command of the *Oreto* on the

[1] Extracts and references from "Official Records of the Union and Confederates Navies in the War of the Rebellion."

8th of August (1862), the day after her release, and on the same day announced that her name henceforth would be *Florida,* in compliment to the native state of the Confederate Secretary of the Navy, Mr. S. R. Mallory. He at once moved the ship to the outer anchorage of the harbor and took up a position near where H. B. M.'s ship *Petrel* was anchored; this for the double purpose of watching for an opportunity to dodge the United States men-of-war waiting for him outside and for the protection of the British ship's guns while he remained inside. He could not anchor, as he did not have men enough on board to weigh, the crew being composed of only 11 men before the mast, stokers included. No sooner did he make his appearance at the outer anchorage than the U. S. S. *Cuyler,* one of the fastest vessels in the American navy at that time, came into harbor and steamed around the *Florida.* The commander of the *Petrel* then insisted that the *Cuyler* should either anchor (which, under international law, would give the *Florida* 24 hours' start before the *Cuyler* could follow) or go out beyond the marine league limit. The captain of the *Cuyler* elected to go outside and wait.

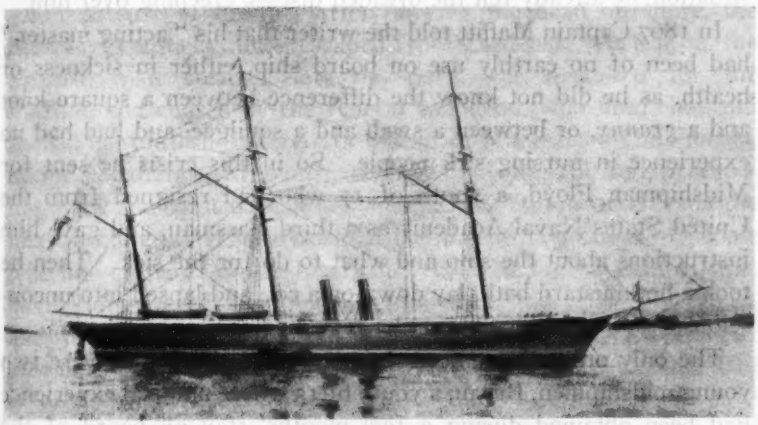
Shortly after night had fallen the sympathetic commander of the *Petrel* ordered a hawser to be passed to the *Florida.* To this she held on until after midnight, when she cast it off and, under the shadow of the land, stole away to the southward, unseen by the federal men-of-war waiting outside.

On August 9 the *Florida,* with a schooner named *Prince Albert* in tow, anchored one and three-quarters miles west-southwest of Green Cay in the Bahamas, and here she was joined by the steamer *Bahama,* belonging to Fraser, Trenholm & Co., of Charleston, S. C., and Liverpool, England, the financial agents of the Confederacy in Europe. The *Bahama* had on board the ammunition, guns and provisions for the *Florida;* in fact, everything needed to equip a cruiser except rammers and sponges, which by some oversight had been forgotten.

The *Florida* was as short of officers as she was of men before the mast. As has been said before, she was commanded by Lieutenant J. N. Maffitt, a gallant and most capable officer, whose daring adventures and hairbreadth escapes while commanding blockade runners before and after his cruise in the *Florida* would read like a chapter out of a yellow-back novel. He possessed a most remarkable knowledge of the channels leading into the

Southern ports, and the late Rear Admiral Benham, U. S. N., who had served under him when Maffitt commanded the U. S. S. *Crusader* on the coast survey, once told the writer that Maffitt had always impressed him with the idea that he had harbor charts photographed upon his brain.

Lieutenant Stribling, formerly of the United States Navy, and a very capable young officer, was the *Florida's* executive. Acting Master Bradford, a civilian appointee of no nautical experience whatever, was next in rank, and Midshipmen Floyd, Bryan and Sinclair, who had never made a cruise before, completed the list of line officers. There were also on board an acting officer of



CONFEDERATE STATES STEAMER "FLORIDA"

marines (Maffitt's stepson, Read), four engineers, and Vogel, the captain's clerk. Under the burning rays of a blistering tropical August sun these officers, stripped of clothing, labored with the 11 men of the crew, and finally succeeded in getting the guns and stores aboard. While engaged in this arduous work an enemy more dreaded than the federal cruisers made its appearance in the shape of yellow fever. The first victim was the wardroom steward, who quickly succumbed and was buried on the lonely cay.

On the 16th of August, the transfer of their armament and stores having been completed, it was discovered that several new cases of the fever had developed among the crew. The *Florida* was therefore commissioned on the 17th, the Confederate flag being hoisted and feebly cheered by the half dozen men who still had strength enough to raise their voices, and then hurried to sea.

A United States man-of-war, supposedly the fast cruiser *Sonoma,* was passed on the 18th, but the *Florida* kept so close to the reef that the federal warship did not see her, and the *Florida* was headed for Cardenas, Cuba, which harbor she entered on the 19th in search of medical assistance for her stricken crew. The yellow fever spread with fearful rapidity among both officers and men. Captain Maffitt, finding that he could get no assistance in Cardenas, sent Lieutenant Stribling to Havana in hopes of getting help from that port. Maffitt himself was nearly exhausted. His quarterdeck was a hospital. He was the only man on board who knew anything about medicine and, to add to the horrors of the situation, he already felt the dreaded disease creeping over him.

In 1867 Captain Maffitt told the writer that his "acting master" had been of no earthly use on board ship, either in sickness or health, as he did not know the difference between a square knot and a *granny,* or between a swab and a squilgee, and had had no experience in nursing sick people. So in this crisis he sent for Midshipman Floyd, a youth of 17 who had resigned from the United States Naval Academy as a third classman, and gave him instructions about the ship and what to do for the sick. Then he took a hot mustard bath, lay down on a cot, and lapsed into unconsciousness, in which condition he remained for seven days.

The only other line officers left on board the vessel were two young midshipmen, Bryan, a youth of 15 whose nautical experience had been obtained during a few months' stay on board of the historic frigate *Constitution* while lying at anchor off the United States Naval Academy as a schoolship, and Sinclair, 16 years old, who had never had any nautical training whatever.

When Captain Maffitt regained consciousness he was at once informed of the death of his stepson, young Read, to whom he was devotedly attached, and the shock of the news caused a relapse. To add to his troubles, Floyd, his right-hand man, and Midshipman Sinclair had contracted the fever, leaving only the acting master and Midshipman Bryan fit for duty.

Several shore doctors held a consultation over Maffitt and, with the exception of the surgeon of the Spanish gunboat *Guadalquiver,* all expressed unfavorable opinions as to his chances of recovery. However, Maffitt told the Spanish navy doctor that "his prognostics were correct, as he, Maffitt, did not have time to die."

On August 30 Lieutenant Stribling returned from Havana, where he had found the yellow fever raging, and as all the sailors who could possibly get away from the port had left, he was only able to induce 12 men, including four stokers, to accompany him back to the *Florida,* where most of these men were stricken by the fever immediately after their arrival on board. A report that several United States men-of-war were outside the harbor waiting for the *Florida* caused the Governor-General of Cuba to telegraph Captain Maffitt "to proceed to Havana, as there were no forts at Cardenas, and a rumor had reached him that it was the intention of the federal ships to cut him out of the neutral harbor."

On August 31 (1862), after burying the dead on shore, the *Florida,* by a lucky fluke, escaped from Cardenas. At 8 p. m. the Spanish mail steamer left the port, was mistaken for the *Florida,* and chased by the federal squadron, who fired shot and shell at her until she entered the harbor of Matanzas. The *Florida,* taking advantage of the mistake, sailed at 9.30 p. m. and, proceeding along the coast unmolested, entered the harbor of Havana the next morning at 11.30 o'clock, while a great concourse of people who had gathered on the quay cheered. The federal men-of-war, having discovered their mistake in chasing the Spanish steamer, and the fact that their quarry had escaped from Cardenas, quickly assembled off the "Morro" a few hours after the *Florida* had entered the port.

Captain Maffitt, having satisfied himself that it would be impossible for him to obtain either men or other assistance at Havana, and still so ill that he had to be carried on deck when his presence there was necessary, determined that there was nothing left for him to do but force on entrance into a Confederate port. So at 9 p. m. on the day of his arrival at Havana he sailed for Mobile, avoiding the federal fleet by steaming for some distance very close to the shore, the shadow of the land and the night befriending him.

Arriving off Mobile on the afternoon of September 4, only three blockaders were sighted. Ill as he was, Captain Maffitt had himself carried on deck so that he could care for his ship and his sick and convalescent crew. The story of the *Florida's* thrilling dash through the blockade is best told by Maffitt in his testimony before the court of inquiry which Commander Preble of the United States ten-gun sloop-of-war *Oneida* obtained seven years after the close

of the war (1872). Commander Preble had been summarily dismissed from the navy when the *Florida* succeeded in getting into Mobile Bay; he had been reinstated, but craved vindication, and after seven years of incessant effort he got it.

When the court was convened Captain J. N. Maffitt was called as a witness, and, after being duly sworn, deposed as follows:

"I think it was about 3 o'clock in the afternoon when Fort Morgan was reported in sight, and also two steamers, evidently blockade steamers. Having determined, if possible, to enter the harbor, I did not change my course, but continued to advance. Both of them came out to meet me. When quite near the *Oneida* I was hailed and ordered to 'heave to' immediately. I should say that a shot was fired across my bow previously to the hail. I declined, in response to obey the order, and immediately received a broadside, the effect of which was to carry away all my hammock nettings and much of my standing and running rigging. The superior speed of the *Florida* enabled me to pass the *Oneida*. She continued her bombardment. One 11-inch shell passed through the coal bunkers on the port side, struck the port forward boiler, took off one man's head as it passed on the berth deck, wounding nine men. If it had exploded, which it failed to do, I no doubt would have lost every man in the vessel except two men at the helm, as I had ordered all the crew below. Immediately after this a shot from the *Winona* entered the cabin and passed through the pantry; an 11-inch shell from the *Oneida* exploded close to the port gangway and seriously wounded the vessel. The fire from this vessel, the *Oneida*, increased in warmth and destruction, carrying away all the standing and most of the running rigging of my vessel. I endeavored to make sail, and succeeded so far only as letting fall the topsails. Several men were wounded in the rigging, the sheets and tyes shot away, so that I was not enabled to set the sails properly. At this moment I hauled down the English flag, under which I was sailing as a *ruse de guerre*, and gave the order to one of the helmsmen to hoist the Confederate flag. At that moment he was endeavoring to haul up the foot-brail of the spanker, and lost his forefinger with a shrapnel shot, so that my order in regard to the flag could not be complied with. During all this time shell and shrapnel were bursting over us and around us, the shrapnel striking the hull and spars at almost every discharge. We made no effort at resistance, for, though armed, we

were not at all equipped, having neither rammers nor sponges, sights, quoins, nor elevating screws, and many of the men and some of the officers were sick with yellow fever, from which disease the first lieutenant (Mr. Stribling) died 24 hours after we got into port. When we anchored under the guns of Fort Morgan, shortly after sundown, the *Florida* was a perfect wreck, and only succeeded in escaping by the smoothness of the sea and her superior speed. The 11-inch shell which came in and passed along the berth deck entered three inches above the water line, and if there had been any sea on, our bilge pumps would not have saved the vessel from sinking. An idea of the damage done to the *Florida* may be comprehended by the fact that it took three months and a half to repair her—of course with the limited facilities at our command in Mobile Bay."

Admiral Farragut found fault with the marksmanship of the *Oneida* (see Naval War Records). The great admiral must have been hard to please. If the *Oneida's* target practice had been any better, what would have happened to the *Florida?*

In this limited space it is impossible to give a detailed account of the exciting cruise of the *Florida;* suffice it to say that, owing to the delays in her departure from Mobile, caused by the lack of facilities in that port for fitting her for sea, Mr. Mallory, Secretary of the Confederate Navy, became impatient and relieved Maffitt of the command. Mr. Davis, the President, happened to be passing through Mobile at the time and, at the instigation of Admiral Franklin Buchanan, C. S. N., who commanded the station, and explained that the delay was in no way the fault of the captain, ordered Maffitt to resume command of the ship.

In the early morning hours, between midnight and dawn, on the 16th of January, 1863, the *Florida* made her escape from Mobile Bay. There were 12 war vessels in the blockading fleet, but she was not discovered until she was in the midst of them, and then commenced a most exciting chase. The *Florida,* under a heavy press of sail and steam, easily outfooted them with the exception of the *Cuyler* and *Oneida,* the former vessel keeping in sight of the *Florida* for 18 hours, though the *Florida* was making 14½ knots, a great speed for those days.

While cruising, the *Florida* burned and bonded many merchant ships, the most valuable one being the splendid ship *Jacob Bell,* from Foo-Chow, China, bound to New York, with a cargo of tea,

etc., which Maffitt, in a report to Secretary Mallory, stated to be valued at over $2,000,000.

On the 6th of May, 1863, Captain Maffitt placed a prize crew of 20 men and a howitzer on board of the prize brig *Clarence,* and made a tender of her, giving the command to Lieutenant C. W. Read (the celebrated "Savez"), who volunteered to take her into Hampton Roads and cut out a federal gunboat. The *Clarence* was, however, so slow that when he captured the fast sailing bark *Tacony* (by a ruse) he transferred his crew to her and started on his extraordinary cruise along the New England coast.

On July 8 the *Florida* was 50 miles from New York when she sighted the four-funnel United States gunboat *Ericsson,* and made chase after her, firing several shots, but a dense fog rolled up and the *Ericsson* escaped. The *Ericsson* was propelled by hot-air engines and was invented by, and named for, the famous constructor of the original *Monitor.*

The *Florida* put into the port of Brest, France, for repairs on August 6, 1863. There Captain Maffitt, at his own request, on account of ill health, was relieved from the command, and Lieutenant Charles Manigault Morris succeeded him. This officer was unfortunate in that, after leaving Brest, he took the *Florida* into the Brazilian port of Bahia, where she was rammed, boarded and captured at 3 o'clock on the morning of October 7, 1863, by the United States sloop-of-war *Wachusetts,* under the command of Captain Napoleon Collins, while half of the crew and the captain of the Confederate cruiser were on shore liberty in a neutral port. The *Wachusetts* towed the *Florida* to sea and sent her to Hampton Roads as a prize. The Brazilian government made a vigorous protest and demanded of the United States government the return of the ship and an apology. The United States government acquiesced, but on November 19, 1864, the *Florida,* while lying at anchor in the roads, was accidentally (?) rammed by the government tug *Alliance* and sunk in nine fathoms of water, thus closing the career of the *Florida* and, automatically, the international incident.

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

A PERSONNEL RESERVE FOR THE NAVAL SERVICE

By LIEUTENANT C. C. GILL, U. S. Navy

The urgency of providing an adequate naval reserve personnel is forcibly set forth in a report of the navy general board dated November 17, 1914, wherein it is pointed out that the strength of fleets is usually measured in the public mind by the number and tonnage of the material units, whereas the real strength of a fleet lies in the combination of material with another and more important element too often neglected in making provision for our navy, namely, an adequate trained personnel. The report continues to explain that no nation in time of peace keeps all the ships of its navy fully manned and in full commission; but all leading nations except ourselves provide an active list sufficient to keep the best of their fleet ready for war, *and in addition a trained reserve of officers and men* sufficient to man every serviceable ship of their navies. Thus, every nation with whom conflict is possible is prepared to mobilize its entire navy, by order, with officers and men trained for the service. The general board states that we alone of the naval powers are unable to man quickly with trained crews the ships of the navy serviceable for war, because we lack a trained reserve.

What constitutes an adequate naval reserve is a debatable question. Without arousing conflict of opinion on this point, however, an approximate estimate may be based upon a consideration of our war requirements in the circumstance of our enemy being one of the first-class naval powers. In doing this it will be attempted to follow the course of our normal naval policy.

Upon the imminence of hostilities one of the first steps to be taken would be the summoning of all naval reservists to the colors, and the mobilization of all effective fighting ships. Inasmuch as those reservists needed in the initial fighting line would have to be better organized and better trained than those who may expect the advantage of a period of training after mobilization, it is convenient to divide reservists into two classes, A and B: *class A* to comprise those required to man all effective ships, to man the

coastal and harbor establishments as may be necessary for carrying out coast patrol duties and enforcing war-time harbor regulations, and also those required to release for sea duty a certain number of active service ranks and ratings now on duty in shore establishments; *class B* to include reservists held in readiness for after-mobilization duties, such as manning additional armed vessels and auxiliaries from the merchant fleet, manning United States ships nearing completion and foreign warships building in private yards taken over as a war measure, and providing relief crews for submarines, destroyers, torpedo-boats, and other vessels required to perform duties involving exceptional strain upon the crews. (No mention is made of the possible need for replacing casualties, because it may be assumed that the wastage of ships will equal, if not exceed, the wastage of crews.)

Upon mobilization under the normal policy, active service ratings would provide for manning the ships already in full commission, for making up nucleus complements of other effective ships to be mobilized, and for supplying a nucleus proportion of the officers and men required to man the various shore naval establishments. A part of the personnel required to perform the after-mobilization duties enumerated above for the *class B* naval reserves would also have to be drawn from active service ratings.

As a concrete example of how the above principles governing war requirements would apply in practice should this country to-day become involved in a war with a powerful enemy, the needs for trained naval reservists to supplement the 52,667 active service ratings may be briefly and roughly estimated as follows:

(1) To man ships of military value now in reserve or in ordinary	20,000
(2) To man United States ships nearing completion	5,000
(3) To man ships (war and merchant) building at private yards for foreign countries, taken over as a war measure	3,000
(4) To man coastal and harbor establishments—including aeroplane and motorboat scouts, mine sweepers, pilot and police craft necessary to assist coast guard in enforcing war-time harbor regulations, and a system of signal stations (for the most part radio) to transmit information gained by the air and water scouts	25,000
(5) To man ships of mercantile marine purchased or hired for use as colliers, transports, repair ships, ammunition ships, provision ships, hospital ships, etc.	3,000
(6) To perform additional war-time duties in shore naval establishments	5,000
Total	61,000

In the Civil War the personnel of the navy was increased from 7000 to 51,000, while in the Spanish-American War our regular naval force of 12,000, at the beginning of hostilities, was almost immediately doubled. At the outbreak of the present European War, Great Britain's navy numbered 120,000 active service ratings and about 100,000 reservists, 53,000 of whom were trained reservists ready for immediate duty. England's active navy now has a personnel of about 340,000. Judging from the experience of our past wars and in light of the lessons to be inferred from the present war, the above estimate of 61,000 reservists appears conservative rather than extravagant. The organized and trained naval reservists available to meet the above demands comprise:

State naval militias	8,000
Coast guard and other reservists	1,900
Totaling	9,900
And leaving a deficit of	51,100

Until enough reserves can be provided to perform at least all the mobilization duties enumerated for the *class A* reservists, the only alternative is to supply the deficiency by additional active service ratings, a temporary measure involving great expense not likely to be looked upon with favor in Congress. It is, therefore, a question of imperative urgency to devise ways and means of organizing and training an adequate naval reserve personnel. But while stressing the need of doing this, it must be borne in mind that it would be inconsistent with efficiency to try to reduce the number of active service ratings by providing larger numbers of reserves in substitution.

The minimum peace-time active service personnel consistent with maintaining the navy in a proper state of preparedness may be said to comprise those ranks and ratings needed to man ships in commission,[1] to supply nucleus crews of about one-fourth full

[1] The ships recommended for full commission by the general board include all battleships under 15 years of age from date of authorization, all destroyers and submarines under 12 years of age from authorization, half of the cruisers, all gunboats, and all auxiliaries necessary to the active fleet.

complement[2] for care and maintenance of effective fighting ships held in reserve, to man the administrative machinery of naval shore establishments, to provide instructors for service schools and naval volunteer organizations such as the state naval militias, to keep in attendance at the various service and training schools sufficient numbers of officers and recruits to supply the needs of the fleet, to man recruiting stations, and to provide a due number of officers and men to allow for those on passage to foreign stations, sick, on leave, etc.

It is to be noted that the total of these peace-time needs for an active service personnel approximate the war-time requirements. Moreover, when the active service men required for peace needs are insufficient, bad effects are seen in failure properly to care for and maintain the fighting ships in reserve, resulting in deterioration of material far more costly than the saving in wages. Insufficiency in active service ratings also has a bad effect on morale and training which, though less tangible than the deterioration in material, is none the less important. It would, therefore, appear contrary to principles of both efficiency and economy to reduce this active service personnel, either by increasing those ships on the reserve list, or by other expedient, such as substituting reservists for active service ratings. It is, however, consistent with these principles of economy and efficiency, and necessary in conforming to them, that the additional naval ratings needed in time of war be made up from trained reservists.

The need of trained naval reservists having been demonstrated, and their numbers and qualifications indicated in a general way, the question now resolves itself into—How can this need best be supplied? Since the uses for naval reservists are various, it is well, in so far as may be practicable, to recruit these men from the various civil occupations best fitting them for their respective naval duties. Also it may prove convenient for organization and administration to divide them into groups according to the naval duties for which they are to be trained. Our naval reserves at present may be considered as comprising three groups: First, a naval

[2] The general board has recently recommended nucleus crews of one-half full complement. This appears to be an emergency measure forced because of a lack of trained reservists.

reserve from men who have served in the active fleet; second, the coast guard service; third, the naval militias of 23 states. In addition to these, there has been talk of a motor-boat and an aeronautic reserve corps as well as a few rather sporadic efforts to establish some kind of a national volunteer organization.

There seems to be a place for an additional volunteer organization, and also for a mercantile marine reserve. The purpose of the following discussion is to suggest a tentative framework for a well-rounded reserve. For the sake of clearness, all reservists have been divided into five groups. The organization and training of each group will be considered separately and in turn under the following five headings:

1. Fleet naval reserve.
2. Coast guard reserve.
3. State naval militias.
4. Mercantile marine naval reserve.
5. Naval volunteer reserve.

Fleet Naval Reserve

The fleet naval reserve group comprises men who have served one or more four-year enlistments in the regular service. The chief merit of this group lies in the fact that its members are all trained men, a condition making for efficiency. This efficiency, a matter of greater importance than numbers, is grounded in skill and discipline. With naval volunteers, the latter of these two factors usually presents the greater difficulty. Many civil employments train in skill for the various ratings aboard ship, but there are no shore employments which give satisfactory training in the requirements of man-of-war discipline. "The units of a force may personally possess every necessary quality, but to render those units, when massed together, reliable, there should be a cohesion and solidarity in the force in order that it may be inspired with that justifiable confidence and unity of action which go so far to ensure success."[3] This cohesion and solidarity depend upon knowledge of and readiness to fulfil the requirements of ship discipline. It is logical, therefore, to place first reliance in reservists trained on board United States men-of-war.

[3] From Admiral Tryon's Committee Report of 1892.

In utilizing the active fleet, however, in the peace-time training of reservists, it should be remembered that continuous service men are most useful aboard ship, both as regulars and as reservists; thus it is important to guard against injuring the efficiency of the active fleet by discouraging continuous service in order to build up the fleet reserve. This point has been considered in the recent naval reserve bill, which aims at encouraging re-enlistments and at the same time attracting both short- and long-service men to join the reserves. In accordance with this new law, men receiving an honorable discharge may join the naval reserve with a rate of pay corresponding to their length of service, or they may re-enlist with a view to transferring to the reserve later on with a still greater rate of pay. These fleet reservists are divided into two parts; those who have held active service ratings 12 years or less comprise one part, and those who have had 16 or more years of active service the other.

At present this fleet reserve numbers only 274 men, but it is only one year old, and of such a character as to require time for growth. One reason so few men have enrolled is that the provisions of the present law have failed to attract non-continuous service men who have left the navy in years past. But if it is particularly desired to enroll these men, amendments can probably be hit upon which will induce them to join.

The war-time employment of these fleet reservists will depend largely upon the training and experience of the individuals. Men of more recent and more thorough training would properly be assigned to the *class A* reservists to join first line fighting ships upon mobilization. They would prove particularly useful in manning reserve destroyers, torpedo-boats and submarines; also in supplying relief crews for these and other types of vessels which may be called upon to perform duties involving excessive hardship on the crews. Those who are less available because of remote residence, or less up-to-date in training, would be assigned to the *class B* reservists for employment after mobilization in manning United States men-of-war nearing completion, foreign men-of-war nearing completion in United States private yards and taken over by the government as a war measure, ships purchased for auxiliary purposes, and to replace the wastage of personnel should it exceed the wastage in ships. Older men physically unfit for

active duty would relieve a proportion of the regulars on duty in shore establishments, thereby making them available for sea duty. (In doing this, however, it would appear wise to go slow, as the effectiveness of the fleet may depend to a great extent upon the up-to-date efficiency of the navy yards and other shore establishments.)

COAST GUARD RESERVE

In 1914 the life saving service and the revenue cutter service were united to form the coast guard, under peace-time control of the Treasury Department. In time of war, or when war is imminent, the law provides that by executive order the coast guard service may become part of the navy, under the control of the Navy Department.

The revenue cutter service was organized in 1790 to patrol the coasts and enforce custom laws. It constituted the original naval force of the country as there was no regular naval establishment at that time. Since then this valuable little service has grown up with the country until now, consolidated with the life saving service and changed in name to the coast guard, it constitutes a compact and efficient organization—an emergency service—specializing in the performance of governmental maritime duties, but well trained for naval work by a rigid system of military discipline.

The peace-time duties of the coast guard service include the following: Assistance of vessels in distress; destruction of derelicts and other menaces to navigation; protection of customs revenue; enforcement of laws governing the merchant marine in matters of neutrality, navigation, anchorage, quarantine, immigration, and the like; suppression of mutinies on board merchant vessels; the policing of seal and other fisheries; and life saving service which embraces 285 stations for picketing the ocean and lake coasts. This small but capable naval reserve has a personnel strength of about 1300 officers and men. The coast guard ships number 20 of the first class (1600 tons to 740 tons), six of the second class (670 tons to 400 tons), and 19 third-class vessels and launches.

It is obvious that in war time the present duties of the coast guard will be increased rather than diminished, and it may be expected that the enforcement of war-time harbor and coast regu-

lations will make it advisable either to employ naval vessels to assist the coast guard or to organize and train a reserve of motor-boats, tugs, yachts, and other craft for this important work. If possible, it is better to relieve regular naval ships of this duty so that they may be employed in other naval work, and it would therefore appear a wise plan to organize and train a coast guard reserve.

State Naval Militias

Massachusetts organized the first naval militia in 1890 as part of the organized militia of that state. Other coastal states, one by one, followed the example of Massachusetts. At the time of the Spanish-American War the naval militias of the various states had grown to a strength of about 4000. Both officers and men performed important service during this war. Some went direct to the fighting ships of the fleet, while others served in the coast guard and signal corps. An auxiliary force of 10 monitors, 10 yachts and 41 other vessels to patrol the coasts was manned largely by naval militia.

The year following the war this service numbered about 7000 officers and men. From then up to the present time there has been slight increase. On July 1, 1915, 22 states and the District of Columbia had naval militia organizations totaling a strength of 8312 officers and enlisted men. (New organizations are being formed in Texas and Hawaii.) Each year since 1891 Congress has appropriated money for arming and equipping naval militia. As this reserve has developed in usefulness, the federal government has increased its encouragement and support, until this year the Navy Department has a total of $450,000 to spend on the naval militia. In addition, the states continue to appropriate funds for their respective establishments.

Federal money is used to purchase small arms and ammunition, loading machines, and other mechanical contrivances to be rigged in armories for training the men for duties at the big guns on board ship. The department also provides for each state organization an annual cruise lasting about two weeks on board a United States man-of-war. During this cruise officers and men receive the same compensation that is paid to men of corresponding ranks and ratings in the regular navy. Many states have, moreover, vessels regularly assigned to them for use throughout the year for

drill and week-end trips. The Navy Department keeps these ships in good condition and the organizations so favored usually make their annual cruises on these regularly assigned vessels, if they are big enough to accommodate all hands at once.

Advancement in this auxiliary naval branch is anticipated under the operation of a law of February 16, 1914, to promote the efficiency of the naval militia. This act places control, to a great extent, under the supervision of the Navy Department, thereby permitting a standardization of all state naval militias as to organization, administration and training. To assist the department in meeting the provisions of this law, a national naval militia board composed of five naval militia officers, representing the North Atlantic, South Atlantic, Pacific, and Great Lake regions, was appointed by the Secretary of the Navy on June 2, 1914, and is convened in Washington as often as may be necessary for consultation on important naval militia matters. This board, in conjunction with a board of naval officers appointed for the purpose, has formulated examinations for officers and enlisted men of all the state organizations, thus standardizing the qualifications for the various militia ranks and ratings. The law, which virtually federalizes the naval militia, closely concerns the active service, because, if an emergency should arise, it is provided that the naval militia automatically will become a part of the navy.

Naval militia officers at present are encouraged to apply for assignment to cruising ships for short periods of training at such time as may suit the convenience of the applicant. This feature of peace-time training should prove both popular and valuable. Not only officers, but also enlisted men, petty officers especially, might profit by tours of duty lasting from two weeks to two months on board ships in active commission. The service schools for gunners, electricians, radio men, yeomen, and the like, might also be thrown open to deserving reservists, provision being made whereby the status of a naval militiaman, while taking a course in one of these schools, would be the same as though he were assigned to a cruising ship; that is, he would get the pay and compensation of his corresponding active service rating.

It would appear that the naval militia, as it exists to-day, supplies a foundation for a valuable reserve. The older battleships and cruisers might be assigned to the various states with the understanding that upon mobilization their respective naval militia

organizations would perform the important duty of filling out the nucleus active service complements of these reserve fighting ships.

Objection may be raised to such a policy on the grounds that the organizations are inadequate both as to numbers and training. This is true, but they are growing in numerical strength and increasing in efficiency. The progress already made under the stimulus of the new law supplies evidence that if the Navy Department asked the various states for naval militia forces to man effective ships now in reserve or in ordinary, they would be found ready to do their part in building up adequate organizations. It has been announced that Massachusetts, the founder of the naval militia, has again taken an important initial step by accepting the assignment of the reserve battleship *Kentucky,* apparently with the understanding that her organization will see to it that this unit is well manned in an emergency.

The naval militiamen of Massachusetts are thus faced with a definite task. The knowledge that they are drilling on board the same ship in which they will serve in war produces *reality,* a potent spur to intelligent training. The assignment of a definite task, besides giving reality and stimulating interest by making clear to reservists exactly what their war-time usefulness will be, also permits the application of the principle of specialization in peace-time training. The proper performance of duties on board a modern man-of-war requires special skill, and it is a condition to be reckoned with that the average naval militiaman is a workingman with his paramount interests outside the navy and with comparatively little time to devote to naval work. In order to make peace-time training effective, it is necessary to assign individual duties as specifically as possible in accordance with natural inclination and adaptability. This can readily be done if ships in reserve are assigned, both for peace-time training and war-time work, to the various states possessing naval militia organizations.

The point may be raised that fleet reservists might better be employed to man reserve battleships and cruisers. This is a matter open to argument, but it would appear that, as has already been said in discussing the war-time employment of fleet reservists, they might better be used in the reserve destroyers, submarines, and in the performance of other duties, of which there will be plenty, leaving the manning of the larger ships in reserve to the state organizations. The state naval militias are more available

as units, and also possess a certain amount of cohesion and solidarity, elements which, as has previously been pointed out, are essential to naval efficiency.

The policy illustrated in the assignment of the reserve battleship *Kentucky* to the State of Massachusetts appears, therefore, to be a good one to extend to other states as fast as their respective organizations evidence ability to fill out promptly and efficiently the nucleus active service complements regularly assigned capital ships in reserve. (The ships already detailed to the various states are for the most part small. It may be expected that organizations assigned battleships or large cruisers will wish to retain the smaller craft for week-end trips.)

Mercantile Marine Naval Reserve

In the war now in progress Great Britain is employing about 3000 ships of her mercantile marine in naval duties. Reckoning in terms of tonnage, this is more than the total of ships under the United States flag on August 1, 1914. While it may be argued as unlikely that the United States, as a belligerent, would have need to lean so heavily on her merchant navy, it is, nevertheless, generally admitted that greater security would be felt if our navy were backed by a strong mercantile marine. It is, therefore, from a naval standpoint, a matter of satisfaction to hear that on December 1, 1915, the ships under the American flag totalled to a tonnage of 8,444,258; also that many big vessels are being built, including 11 colliers, 47 oil vessels, 34 general freight vessels, and 6 passenger and freight vessels. The prospects for a United States merchant navy are bright, but it would be a policy of doubtful wisdom to regard this prospective mercantile marine as a source from which to draw large numbers of reservists for men-of-war.

One of the chief duties of the navy is to make the seas safe for our trade ships, and it would not appear desirable, unless all other measures fail, to man reserve warships at the cost of laying up trade ships. Even if a state-subsidized and state-regulated merchant service were established, it would not be wise to rely mainly thereon for naval reservists, unless, perhaps, an additional wartime merchant reserve were provided to take the place of naval reservists withdrawn from the trade ships. On the other hand, it is desirable to recruit reservists from trade ships to provide a large

part of the crews for such vessels as may be diverted in war time from commercial to naval uses, such as armed auxiliaries, colliers, transports, supply ships, hospital ships, repair ships, and the like.

Should the necessary federal support be authorized, the question of organizing and training this reserve branch would be largely a matter of arrangement between the Navy Department and the various shipping companies. The details might be worked out by a conference committee composed of sea-going officers, both naval and merchant, together with representatives of the leading transportation companies and shipowners.

NAVAL VOLUNTEER RESERVE

The sources of the groups already discussed are in a way restricted. The fleet reserve is open only to ex-service men; the coast guard is a maritime establishment of the government; the naval militia comprises a number of special state organizations to a certain degree local and necessarily bound by limitations respecting both numerical strength and qualifications; while the mercantile marine reserve is for the personnel of the merchant navy. Since the navy is our first line of defence, it seems strange that there should be so few localities—embracing not even all our seaports—where a citizen can, without leaving home, volunteer and train for naval duties. This is not the case with our land forces. The experience of the army, with its numerous volunteer organizations to be found in almost every town, indicates that, in present times especially, there are many citizens who take pride in helping safeguard national security by fitting themselves to be of war-time use to their country. Some of these have predilections for naval training, but are forced to join an army reserve because no naval volunteer organization is within their reach. This is unnatural and, in view of our pressing need for naval reservists, wasteful. Recruits hurriedly picked in haphazard fashion at the outbreak of war have done very well in the old-time navies, but the modern man-of-warsman is not like the sailor of the past. There is little doubt but that a force of picked volunteers, who have undergone some naval training, to the majority of whom ship routine and discipline are somewhat familiar, would be a better source from which to draw naval reservists than recruits enlisted at random. Desirable recruits for such a naval reserve may be said to include skilled mechanics and artisans whose ship duties

would be similar in nature to the work they do in following their peace-time trades; also yachtsmen, motor-boat men, radio and telegraph operators, signal men, aeronauts, and other civilians who have an aptitude for the sea.

In order to attract sufficient numbers, it would seem well to have an organization with different kinds of subdivisions varying in requirements so that it may be, to some extent, optional with the individual as to how much and what kind of training he will volunteer for. By this it is not meant to tolerate slackness of any sort, because the right kind of reservist seeks a smart organization, strict in discipline and thorough in whatever work is undertaken; but it is meant rather to encourage thoroughness by assigning a task practicable of accomplishment in the time the volunteer has to devote to it. Of course, the more training he gets the better, but it would not seem a wise plan to debar a good man because his regular employment will not allow him to devote very much time to naval training. Such men might be put in a subdivision together, so as not to retard those who are able to devote more time to drill and instruction. The war employment of reservists will, of course, depend upon the amount and kind of peace-time training undergone, but men of both *class A* and *class B* are needed, and it would not appear impracticable to so organize this volunteer group as to include both of these classes and give appropriate training to each.

In conclusion, it may be added that in attempting to present a brief survey of a very large subject, it has been thought wise to limit the scope to considerations of a general character. No complete plan has been built, but it is hoped that the ground broken, however roughly, may help a little in the work of constructing such a plan—a work which might best be undertaken by a committee composed of both naval officers and civilians officially appointed for that purpose by the government.

What is desired is to establish a principle and policy respecting reservists which may be applicable to any future increase of the fleet.

Note.—This paper was written in January, 1916.

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DISCIPLINE IN THE "OLD NAVY"

By Rear Admiral H. O. Dunn, U. S. Navy

Gallagher, foremastman of the *Iroquois,* was shaving under the lee of the pin rail. Gallagher had two fixed and immutable habits. One was to shave every Saturday forenoon after the ship was cleaned up, the other was quarterly liberty, the latter resulting from a regular habit of returning on board drunk and disorderly every time he went ashore.

At his inevitable appearance at the mast the captain always awarded him three months' quarantine, generally at Gallagher's own request after he had acknowledged his dereliction in a simple statement something like this: "Captain, I ain't got no business ashore nohow, so if you will keep me aboard three months it won't hurt my feelings and it would sure improve my health." Gallagher always left this court of last resort in a cheerful frame of mind, because his request was always granted, and for three months he would devote himself to his duties.

Night and day, storm or calm, he was always at the pin rail to lead out or belay the gear and to lay up in orderly coils the maze of buntlines, clew-lines, sheets, clew garnets, etc., of which he alone knew the intricate hiding places even in the darkest night.

Gallagher's preparations for shaving were simple, not to say primitive: a piece of salt-water soap, a small stub brush, with a purser's razor and a strop of porpoise hide, venerable in appearance and manufactured by himself. Gallagher said, "There ain't no strop can touch it," and I believed him. As for a mirror, nothing was more simple; Gallagher stuck his jack-knife into the mast at a convenient height, fixed his eye intently on the handle, and shaved.

This Saturday morning's function usually drew a crowd of admiring boys around the foremast to listen to Gallagher's yarns,

for he liked to talk while he shaved, punctuating his discourse at psychological moments by stropping his razor on the defunct porpoise.

Often the midshipman of the forecastle would stroll around to the foremast, ostensibly to inspect Gallagher's spotless habitat, but really to listen (as I myself did more than once) to his old-time sea stories.

"You boys think discipline in the navy is hard," said Gallagher. "You don't know nothing about the real discipline we used to have in the old navy, when men would get grog served out to them or the 'cat,' depending on which they deserved.

"I sailed in the *Columbus* frigate once in the '48's up the Straits; Captain Blank, he was what I called a real sailorman, and as for discipline, well, I will tell you what kind he kept on his ship.

"We were cruising from Gibraltar to Port Mahone. It was a fine moonlight night, all sail set to royals, and a moderate wind and sea. I was a boy stationed in the after guard, and that night I was lookout in the starboard main chains. We had to stand outside in the channels and hang on to the lanyards in the main rigging.

"It was the first watch, and, as there was nothing in sight, I sat down in the chains and got to thinking. I must have gone to sleep, for the next thing I knew I was overboard, thoroughly soused and awake in cold water, and the ship was sailing away from me." (While Gallagher is stropping his razor at this dramatic point, I will say that this is a true story, vouchsafed as such and told to me by Judge Hoffman, of Baltimore, Md., now deceased. Hoffman was a midshipman on the *Columbus* and at this time a shipmate and classmate of the present Admiral Luce.)

It seems that the relief lookout went out into the main chains at eight bells, and in shaking the sleeping Gallagher to wake him, accidentally pushed him overboard and, of course, sung out "Man overboard."

In a well-regulated frigate as the *Columbus*, it was only a short time when the ship was hove to and a boat lowered. Naturally, in the performance of this maneuver, even in the seaman-like manner in which it was accomplished, a certain amount of noise occurred, and the captain, sleeping below, with the seaman's

instinct, awoke at the tramping of feet over his head and hurried to the deck to see what was amiss.

It took but a moment for him to mount the poop deck and size up the situation. Leaning over the rail, he saw the lifeboat returning, and when within hail he rasped out to the midshipman in charge, "Have you got your man?" The midshipman's piping voice returned the cheerful "Aye, aye, sir."

Turning to the officer of the deck, Captain Blank said in a curt but incisive voice: "Light the battle lanterns; beat to battle."

Before the drums had ceased beating the ship was alive with half-dressed officers and men rushing to "general quarters." The executive officer reported the ship in due time ready for action. The midshipman, followed by the cold and dripping Gallagher, climbed up the sea ladder and over the side on the quarterdeck. The captain received the report of the executive officer and, with a grim look at the shivering Gallagher, said: "Call all hands witness punishment."

The crew and officers marched aft and paraded in their accustomed places on the quarterdeck. The master-at-arms with the inevitable "cat" stood waiting orders at the mast. In the tense stillness of the night, accentuated by the creaking of the yards at the heaving of the ship, the executive officer reported "All ready to witness punishment, sir." Captain Blank stepped forward. The stillness was painful.

(To Gallagher) "What's your name, my man?" "'Gallagher, sir,' sez I. Then the captain sez, 'Master-at-arms, trice him up to a grating and give him a dozen of the cat.' I was shaking with the cold, but I warmed up all right after I got that dozen."

"When they got through the captain comes up to me and sez, 'Gallagher, you would like to know why you are punished, I suppose?' 'Yes, sir,' sez I. 'Well, I will tell you, and all the rest of the ship's company; it's because you left the ship without permission. Pipe down.'"

Gallagher had finished his shaving, and as he carefully stowed away his implements in his ditty box to await their next week's duty, he calmly looked up at his wide-mouthed audience and said, "You see, boys, we had discipline in that ship."

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COORDINATION IN NATIONAL POLICY

By CAPTAIN L. H. CHANDLER, U. S. Navy

There is always in progress more or less argument in favor of coordination between different units of our naval organization, and everyone admits the necessity for the attainment of such coordination to the highest possible degree, the arguments being mainly in regard to the best method of obtaining the desired result rather than as to its desirability or necessity. There is a higher and larger form of coordination, however, even more important in its nature, and in regard to which we hear very little discussion. It is that coordination between different branches of the government in regard to national policies which might perhaps be colloquially designated as "cutting our garment according to our cloth." What is meant is best illustrated by an example.

General Kuropatkin, in his book entitled "The Russian Army and the Japanese War," devotes a number of the earlier chapters to a historical summary of the growth of the Russian Empire, from which he deduced the following general propositions as true on January 1, 1898:

1. That no effort should be made to advance the Russian frontiers in any direction.

2. That efforts should be directed towards making good the defense of the existing frontiers along the following lines:

   A. To northwest, between Russia and Sweden.

   B. To west, between Russia on one side and Germany and Austria on the other.

   C. To southwest, between Russia and Turkey.

   D. To south, between Russia on one side and Persia, Afghanistan, China and Korea on the other.

3. That of all these frontiers the most serious danger existed at that time on the German-Austrian, that Russia's defensive

resources there were entirely insufficient, and that every effort should be made to better them on those lines.

4. That all possible diplomatic efforts should be made to keep things quiet along all frontiers until the Germany-Austria border could be made secure, but that this should especially be done in the Far East.

5. That necessary army reforms should be carried out, as to both personnel and matériel.

Here a literal quotation from Kuropatkin's book is of interest:

> Owing to the large requirements of a peace army of 1,000,000, and the necessity for protecting frontiers stretching for over 11,000 miles, the Ministry of Finance had undoubtedly great difficulty in meeting the demands of the War Department. The requirements of the navy were also continually growing, with the result that less was available for the land forces. But if the Minister of Finance had confined himself to his role of collector of revenue whereby to satisfy all the needs of the state, it could never have been suggested that the money so collected was spent except in accordance with actual requirements, for the decision as to which demands were the most urgent would not have been within this official's province. As a matter of fact, our finances were managed in so curious a manner that the Finance Minister was not only the collector, but also the greatest expender of state moneys! Besides having to bear the ever-increasing outlay in his own department—for establishment, for expenses connected with the collection of taxes and the sale of government liquor—he formed in his own Ministry subsections of the other ministries, such as Ways and Communications, War, Navy, Education, Interior, Agriculture, and Foreign Affairs. So equipped, he planned, built, and administered the great Eastern Chinese Railway without any reference to the Minister of Ways and Communications; organized and commanded two army corps, one of frontier guards, and the other of guards for the railway, and actually chose the type of gun for their armament without reference to the Minister of War; initiated and managed a commercial fleet on the Pacific Ocean, and ran a flotilla of armed river steamboats, which might be regarded as the duty of the Naval Ministry. As regards the work of the Department of Education, the Finance Minister founded the higher technical institutions; as regards the sphere of Ministries of Interior and Agriculture, the Finance Minister had the most important administration—the so-called "alienated" strip of land set aside for the Eastern Chinese Railway—and the building of towns and villages, and the decision of questions concerning the taking up of land and its cultivation; as regards the Department of Foreign Affairs, the Finance Minister conducted negotiations with the highest representatives of the Chinese administration, concluded treaties, and maintained his commercial and diplomatic agents in different parts of China and Korea. There is, I believe, a proverb to the effect that "charity begins at home." Is it to be wondered at, therefore,

that the grants for the pet projects of the Finance Minister were more liberal than those for corresponding services required by the other ministries? The appropriations for public education were cut down, but many millions were spent in constructing huge buildings for polytechnic institutes in St. Petersburg and Kieff, magnificent blocks for the Excise Department, and perfect palaces for officials. Immense sums were spent on the creation of the town of Dalny, on the Eastern Chinese Railway, and its palatial offices in Harbin, and on the services connected with it. For this latter enterprise, which was both a commercial and state proposition (private as regards management, and official as regards the supply of funds), the money was mostly obtained from the so-called "surpluses." These "surpluses" expanded in a manner unprecedented in the financial records, not only of our own country, but probably of the world, and in our case much to the detriment of the most pressing needs of all departments. The idea underlying the creation of a surplus was simplicity itself. While all demands for money were cut down, the estimated receipts from revenue were also reduced. The results were amazing. The excess of receipts over expenditures at a time when the most pressing requirements for national defence could not be met for lack of funds amounted in some years to over £20,000,000. . . . .

In conclusion, the main reason for our military inefficiency was the inadequate funds granted by the Treasury. Funds for the War Department were stinted—

(a) Owing to the greatly increased expenditure on the fleet.

(b) Owing to the large expenditure upon the projects of the Minister of Finance in the Far East, and owing to the underestimation of revenue. But in spite of this, I think it will be allowed that from 1898-1903, during which time it distributed its money according to a strictly defined plan, the War Department attained, on the whole, remarkable results in the strengthening of our military position in the Far East.

According to General Kuropatkin's account what happened was:

1. Entirely inadequate appropriations for military purposes in order that money might be used for other projects, accompanied by

2. An aggressive policy in the Far East that was provocative of trouble with Japan.

In other words, the Russian Government took steps to stir up trouble, at the same time refusing to take the necessary measures to put the country in a condition to meet it.

This one historical instance is given as an example because it so clearly shows, in Kuropatkin's own words, a marked failure in that coordination between the major branches of government—state, finance and military—which invariably leads the trans-

gressor into trouble. The results of the Russo-Japanese war show clearly the punishment that follows this form of neglect. The pages of history will show repeated instances of a similar nature, followed invariably, I believe, by like results.

The necessary coordination means full agreement between the departments of State, Finance and Military Affairs as to:

1. What policies are desirable.

2. What military (including naval) steps are necessary to make them possible.

3. What of such steps the financial condition of the country will enable it to take.

Manifestly no policy should be undertaken without the full assurance that the diplomatic and military resources available are such as to make it possible to carry it through. Should such combined diplomatic and military resources be insufficient to ensure the success of any given policy, that policy must be modified, no matter how desirable it may be in itself, until it becomes one that can be successfully carried out. In the financial world everyone knows what happens to a man who extends his activities beyond the point that is justified by his combined assets and sound credit. Why should we expect any other than similar disastrous results in international policies if we deliberately trangress the similar natural laws relating to resources versus power?

Are our combined diplomatic and military resources equal to the maintenance of our announced policies, such as the protection of our citizens abroad, the Monroe Doctrine, the Open Door in China, etc.? If not, which of the three possible courses open to us are we going to pursue; namely,

1. Increase such resources until they meet the necessities of the case?

2. Modify our policies until they are such that the resources at our command will enable us to succeed with them?

3. Push policies that our available resources do not enable us to maintain, and sooner or later (probably sooner than later) attain the results that history has shown are always reached under such conditions?

And in balancing our books in regard to the matter we must be careful not to assess too highly mere potential resources. Actual

resources at the moment are the main things that are of value. Russia's potential resources far exceeded those of Japan, but how much good did they do her?

NOTE.—Referring to the quotation from General Kuropatkin's book and to the summary of his views given in the above paper, it may be said that it is very difficult to give his meaning with exactness in so brief a summary. Nevertheless it is believed that the expression of his views as set forth above is in general accord with the tenor of his thoughts as expressed in his writings.

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LINES OF POSITION BY THE METHOD OF BALL'S TABLES

By LIEUTENANT (JUNIOR GRADE) K. H. DONAVIN, U. S. Navy

The "Altitude and Position Line Tables," by Frederick Ball, R. N., were published several years ago, and consist essentially of computed altitudes for latitudes 0° to 60° north or south, declinations 0° to 60° north or south, and hour angles from zero to six hours. The method of Marc St. Hilaire has, therefore, been simplified by these tables to the extent that the solution of a line is practically a matter of inspection only.

Chaplain Ball's preface says: "These tables have been compiled in the hope that they may lessen the work of the practical navigator and also increase the probability of accurate results being obtained from his observations.

"The method to which they are adapted is that which is commonly known in this country as the New Navigation, which is briefly explained in the following pages.

"The advantages that may be claimed for these tables are:

"1. All sights, whatever the hour angle, are dealt with in a uniform manner.

"2. In no case, within the limits of the tables for latitude and declination, is it necessary to solve a spherical triangle.

"3. Only one correction has to be applied to the altitude taken from the tables.

"4. Clerical work is diminished.

"5. An increased probability of accuracy is attained."

Quoting further: "It is hoped that for altitudes less than 70° the error will in no case exceed .2′ or 12″, but above that value a gradually increasing error may be met with, amounting to as much as 1′ at an altitude of 85°."

The method is simple, rapid and accurate, as the following short discussion would indicate, full advantage being taken of the fact that no matter what position point is assumed, so long as it is

within about 30 or 40 miles of the dead reckoning position, the resulting line of position will in all cases be the same.

The altitude can be obtained for any instant of time at a given point on the earth's surface by interpolating for latitude, declination and hour angle, but the practical value of the method lies in the fact that a position point may be readily assumed, such that the interpolation for latitude and hour angle is eliminated, and the correction for declination may be obtained either directly or by the use of a sub-table.

This is done as follows: Assume the nearest whole degree of latitude as the latitude of the position point, and convert the approximate longitude into time. Then in finding the local hour angle of the body observed, choose a longitude, as close as possible to the approximate longitude, such that the resulting local hour angle will be exactly divisible by four minutes, such as $4^h\ 36^m$, or $3^h\ 52^m$. Convert the longitude so used into arc, which gives the longitude of the position point.

Now lay off the altitude difference, as obtained from the tables, from this point, and draw the line of position, having previously obtained the azimuth either by Weir or by one of the methods suggested in the tables, which methods are very simple and rapid.

During the summer of 1915 the lines of position I obtained from the use of these tables were laid down in considerably less time than is required by St. Hilaire, the time and results by St. Hilaire being carefully compared with those by the tables. The results by the tables were practically identical with those by St. Hilaire. For all purposes of the practical navigator, the error involved due to the position point being 30 or 40 miles from the assumed position is negligible.

The tables for using the azimuth are very easy to use, and the azimuth can be found practically by inspection. The arguments for one table are "difference in altitude for eight minutes" and "latitude"; and for the other table but one argument is used, "difference in altitude for two degrees of latitude." The details of the use of these tables can be fully understood in a very few minutes, by referring to the explanatory notes preceding the tables.

A considerable saving of time is effected by this method, as but eight to ten minutes are required to completely solve and plot the line of position. As there are fewer steps in this method, and fewer references to tables, the possibility of error is reduced pro-

portionately. It is believed that the method is simpler than other methods involving a variable position point, and it should appeal greatly to officers who do not like to work with logs.

The following problems will serve to illustrate the use of the tables, the problems being worked out by three methods: St. Hilaire; Ball's Tables, interpolating for latitude, declination and hour angle; and Ball's Tables, used properly.

PROBLEM ONE

At 7.00 a. m., Feb. 12, 1916, a ship's position by D. R. was lat. 38° 06′.8 S., long. 163° 54′.9 E., when the navigator observed the ⊙ as follows: W. = $7^h\ 00^m\ 37^s$; C—W = $1^h\ 02^m\ 31^s$; C. fast $5^m\ 12^s$; ⊙ = 16° 28′; I. C. = +1° 00′; height of eye, 40 ft.

The following work is necessary for all methods:

W.	$=7^h$	00^m	37^s	$\odot h$ = 16° 28′.0	Dec. = 14° 15′.2 S.
C—W	$=1$	02	31	Cor. + 7.9	Long. = $10^h\ 55^m\ 39^s.6$ E.
C.	$=8$	03	08	Θh = 16 35.9	
Cf.	=	5	12		
G. M. T.	$=7$	57	56	Feb. 11	
Eq. of T.	=	14	24.1		
G. A. T.	$=7$	43	31.9		

By St. Hilaire and Azimuth Tables:

G. A. T.	$=7^h$	43^m	$31^s.9$		
Long.	$=10$	55	39.6		
L. A. T.	$=18$	39	11.5		
	$=-5$	20	48.5	loghav 9.61796	
Lat.	$=38$	06.8	S.	logcos 9.89586	
Dec.	$=14$	15.2	S.	logcos 9.98642	
				loghav 9.50024	nathav .31640
$L \sim d$	$=23$	51.6			nathav .04273
z	$=73$	38.2			nathav .35913
h (comp.)	$=16$	21.8			
h (obs.)	$=16$	35.9			
a	=	14.1	towards ⊙		

For lat. = 38°, dec. = 14°, $t = 5^h\ 20^m$

Z	$= S\ 84°\ 48'$	E.	Cor. for lat. = + 2′
Cor.	= −18		" " dec. = − 13
Z	$= S\ 84\ 30$	E.	" " t = − 7
Zn	= 95 30		Cor. = − 18

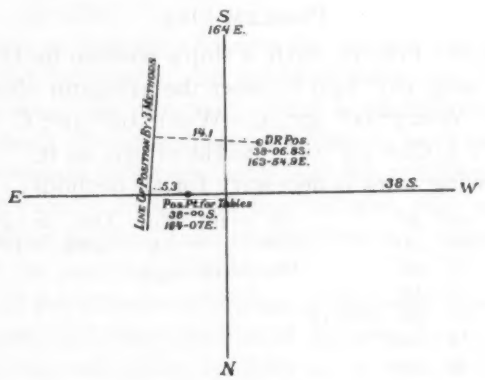
By Ball's Tables (interpolating for lat., dec. and time) and Weir:

G. A. T.	$=7^h$	43^m	$31^s.9$	For lat. = 38°, dec. = 14°, $t = 5^h\ 20^m$			
Long.	$=10$	55	39.6	h	= 16° 21.8′	Cor. for lat.	= + .5
L. A. T.	$=18$	39	11.5	Cor.	= − 0.1	" " dec.	= + 8.8
	$=-5$	20	48.5	h (comp.)	= 16 21.7	" " t	= − 9.4
Z by Weir	= 95	20		a = same as above.		Cor.	= − 0.1

By the correct use of the tables:

G. A. T.	= 7^h	43^m	31^s.9	For lat. = 38°, dec. = 14°, t = 5^h 20^m			
Long.	= 10	56	28.1	h (tables)	= 16°	21.8′	Z by tables = 95° 20′
L. A. T.	= 18	40	00	Cor. for dec.	=	+ 8.8	
	= −5	20	00	h (comp.)	= 16	30.6	
				h (obs.)	= 16	35.9	
				a	=	5.3	towards ⊙

Longitude of position point = 10^h 56^m 28^s.1 = 164° 07′ 01″.5 E.



PROB. I

PROBLEM TWO

At 5.15 a. m., Feb. 26, 1916, a ship's D. R. position was lat. 36° 17′.6 N., long. 67° 20′.5 W. At this time observed the star α Leonis (Regulus), bearing westerly, as follows: W. = 5^h 14^m 52^s; C—W = 4^h 29^m 05^s; C. fast 2^m 40^s; h (sext.) = 14° 06′; height of eye, 40 ft.; I. C. + 1′ 00″.

The following work is necessary for all methods:

W.	= 5^h	14^m	52^s	h (sext.)	= 14°	06′	dec. = 12° 22′.5 N.
C—W	= 4	29	05	Cor.	=	− 09.0	
C.	= 9	43	57	h (true)	= 13	57.0	
Cf.	=	2	40				
G. M. T.	= 21	41	17	Feb. 25			
R. A. M. ⊙	= 22	16	06.8				
Cor.	=	3	33.8				
G. S. T.	= 20	00	57.6				
R. A. ✶	= 10	03	56.8				
G. H. A.	= 9	57	00.8				

By St. Hilaire and Azimuth Tables:

G. H. A.	$= 9^h\ 57^m\ 00.8$		
Long.	$= 4\ 29\ 22$		
L. H. A	$= 5\ 27\ 38.8$	loghav 9.63311	
Lat.	$= 36\ 17.6$ N.	logcos 9.90633	
Dec.	$= 12\ 22.5$ N.	logcos 9.98979	
		loghav 9.52923	nathav .33825
L~d	$= 23\ 55.1$		nathav .04294
z	$= 76\ 15.3$		nathav .38119
h (comp.)	$= 13\ 44.7$		
h (obs.)	$= 13\ 57.0$		
a	$= 12.3$ towards *		

For lat. $= 36°$, dec. $= 12°$, $t = 5^h\ 30^m$ Cor. for lat. $= +04$

Z	$= N\ 84°\ 31'$ W.	" " dec.	$= -19$
Cor.	$= +08$	" " t	$= +23$
Z	$= N\ 84\ 39$ W., or $Zn = 275°\ 21'$	Cor	$= +08$

By Ball's Tables (interpolating for lat., dec. and time) and Weir:

G. H. A.	$= 9^h\ 57^m\ 00.8$	For lat. $= 36°$, dec. $= 12°$, $t = 5^h\ 28^m$;	
Long.	$= 4\ 29\ 22$	h	$= 13°\ 26.1'$
L. H. A.	$= 5\ 27\ 38.8$	Cor.	$= +18.6$
		h (comp)	$= 13\ 44.7$
Z by Weir	$= 275°\ 15'$	a = same as above.	

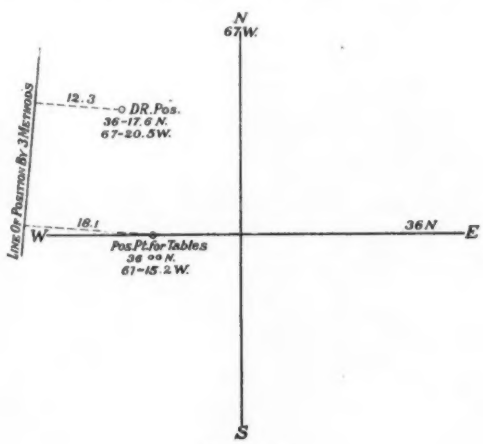
Cor. for lat.	$= +1.3$
" " dec.	$= +12.8$
" t	$= +4.5$
Cor.	$= +18.6$

By the proper use of the tables:

G. H. A.	$= 9^h\ 57^m\ 00.8$	For lat. $= 36°$, dec. $= 12°$, $t = 5^h\ 28^m$	
Long.	$= 4\ 29\ 00.8$	h	$= 13°\ 26.1'$
L. H. A.	$= 5\ 28\ 00$	Cor. for dec.	$= +12.8$
		h (comp.)	$= 13\ 38.9$
		h (obs.)	$= 13\ 57.0$
		a	$= 18.1$ towards *

Z by tables $= 275°\ 15'$

Longitude of position point $= 4^h\ 29^m\ 00.8$. W. $= 67°\ 15.2$ W.



PROB. II

VIEW OF CHARLOTTE AMALIE, ST. THOMAS, D. W. I.
(Taken from back of the West Indian Co.'s wharves)

VIEW OF ST. THOMAS HARBOR, D. W. I., SHOWING PLANT OF THE WEST INDIAN CO., LTD., ON THE LEFT

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U. S. NAVAL INSTITUTE, ANNAPOLIS, MD.

THE HARBOR OF ST. THOMAS

By Lieutenant Byron McCandless, U. S. Navy

The principal islands of the Danish West Indies are St. Thomas, St. Croix and St. John. They are surrounded by small islands and cays.

St. Thomas is the most important island of this group, because of its fine harbor which is practically land-locked. The island is 12 miles long, from east to west, and varies from one to three miles in width. Its population is nearly 13,000, nearly all in the one town of the island, Charlotte Amalie. This town is situated in the middle of the island on the southern slope of the high ridge running through the center of the island, and looks upon the harbor of St. Thomas.

The harbor is in latitude 18° 20′ N. and 64° 56′ W. It has a narrow entrance, about 300 yards at its narrowest point, and opens out into a circular basin that is about three-quarters of a mile in diameter, with a mud and soft clay bottom and an average depth of more than five fathoms. Many improvements to the harbor and the approaches to the harbor have just been completed.

The government of the Danish West Indies announced the opening on August 1, 1916, of the new lighthouse on the north-eastern part of Buck Island, which lies about one and one-half miles south of St. Thomas, in latitude 18° 16′ 48″ N., and 64° 53′ 36″ W. It has a height of 39 meters and is visible about 17½ nautical miles. Its illuminative power is for 23 miles and it gives three flashes every 20 seconds.

Early in the year the West Indian Company, Limited, announced the completion of its new harbor works, the depth of water in the harbor and in the basin dredged in Long Bay having been increased to 31 feet. New quays and wharves were con-

structed, totalling 3200 feet in length. The West Indian Company was organized under the laws of Denmark on October 16, 1912, with a capital of $1,680,000. The original project would have required $7,000,000 for the complete reclamation of Long Bay, not then available for the anchorage of seagoing vessels. This is shown on the accompanying chart by the total area, hatched and in solid black.

It was contemplated reclaiming a large area of land along the shore. This was necessary on account of the hills being so close by. A projecting pier 2000 feet long was to have been constructed, forming a double basin. There was to have been a drydock 800 feet in length and a breakwater extending out to and beyond Prince Rupert's Rock, for protection from the south in case of rough weather. Included in the project was the erection of machine shops, oil tanks, warehouses and electric light plants.

Not being able, however, to get the total sum necessary from Danish investors, work involving about $2,000,000 was started in May, 1913. The reclaimed land is shown on the chart in solid black, with the single basin, varying from 400 to 500 feet in width and of a depth of 31 feet, alongside.

The photographs show clearly the new works. There is accommodation for 180,000 tons of coal. Two electric cranes are provided, covering an area 1200 x 241 feet, each capable of delivering 150 tons an hour. The coal is weighed automatically on officially adjusted weighing machines.

The main pier is 2100 feet long with a bridge extension of 264 feet for use as an oil pier. There are two oil tanks 110 feet in diameter and 30 feet high, holding 8000 tons each. The pumping station can handle 300 tons of fuel oil an hour.

One warehouse, 450 x 52 feet, has been constructed, with room for another. It has a height of 24 feet to the eaves, is made of corrugated sheet iron, with a lower roof of asbestos sheets and a concrete floor.

Fresh water is obtained by the company by means of three wells, while seven more are being put down. It can be delivered to vessels at the rate of 50 tons an hour. A filter station and a reservoir to hold 1000 tons is to be erected later on, and when there is sufficient demand a second reservoir of 2000 tons is to be constructed.

A power house, erected upon the land reclaimed from the swamp, houses two Burmeister and Wain-Diesel motors of 300 horsepower each and supplies power to the electric cranes, lighting for the dock, etc., and in addition supplies current for lighting the city. Gas was previously used.

The company has a small machine shop and provides iron and wooden lighters and water barges.

The East Asiatic Company has a coal depot on the western shore of the harbor, with 31 feet of water alongside. This company is a very successful Danish steamship company with branches in Bangkok, Singapore, Shanghai, Vladivostok, San Francisco and Valparaiso. All of this company's ships going through the Panama Canal stop at St. Thomas.

The St. Thomas Dock, Engineering and Coaling Company operates a floating dock that is 250 feet long, 70 feet wide and capable of taking vessels up to 3000 tons; greatest draft 20 feet, length of keel 300 feet. Its wharf is on the western shore of the harbor, formerly belonging to the Royal Mail Steam Packet Company. There is a depth of 31 feet alongside. The company operates an excellent machine shop, with facilities for casting iron and brass.

The Hamburg-American Line received 177 German steamers at its wharves in 1913 and was doing an increasing business. It did a large transshipment business and gave employment to large numbers of natives. The dock front measures 300 feet with 30-foot water alongside. Three large warehouses, capable of taking a steamer's whole cargo, are a part of the equipment. Rain-water is mainly used in St. Thomas and the Hamburg-American Line has a large space above the coaling wharves for collecting it and conducting it to the tanks. Large letters—H. A. L.—are shown across this space. Large quantities of coal were sold from these wharves.

The office of the Hamburg-American Line in Charlotte Amalie is of a modern and efficient type of construction. It is built of concrete, with provision for catching rain-water, and with tanks and cisterns.

The Creques Marine Slip and Coal Yard operates a marine slip capable of taking vessels of 400 tons. It measures 156 feet by 30 feet. There is a pier 200 feet in length with a depth of 31 feet of water alongside.

A duty of 6 per cent ad valorem is levied on all imports and none on exports. The port and harbor charges have been nominal.

It was on the western end of St. Croix that the *Monongahela* was thrown by a tidal wave in 1867. A working party from the New York yard arrived there in January, 1868, and with the crew succeeded in launching her in June, 1868. The method is described in an early edition of *Luce's Seamanship*.

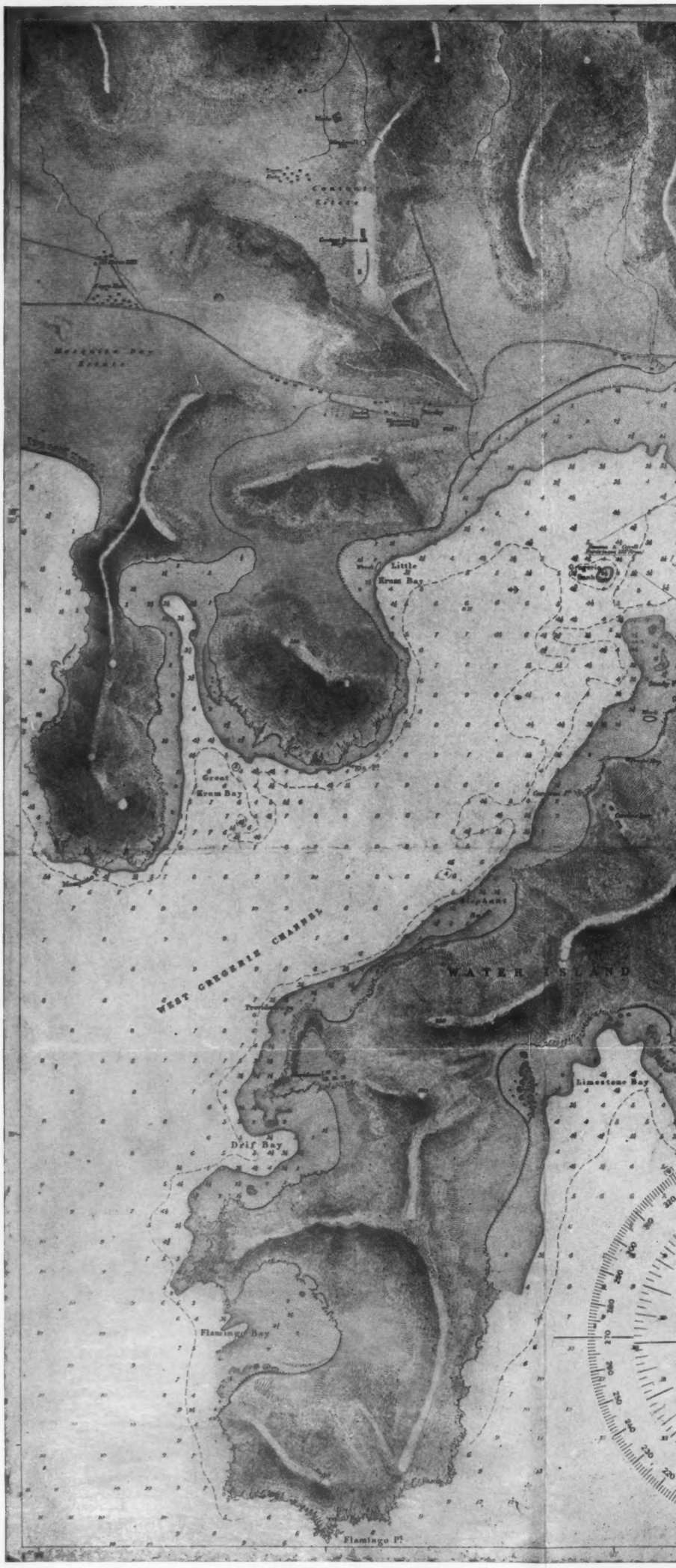
Little Krum Bay
Great Krum Bay
WEST GREGORIE CHANNEL
WATER ISLAND
Limestone Bay
Drif Bay
Flamingo Bay
Flamingo Pt

CHART OF CHARLOTTE AMALIE HARBOR, ST. THOMAS

DISCUSSION

Large *vs.* Small Battleships

(See Page 1079. Whole No. 164)

Lieut. Comdr. T. L. Johnson, U. S. Navy.—Upon the receipt of the Proceedings for July-August I was surprised to find the essay on "Large *vs.* Small Battleships" had been deleted without my knowledge. Subsequent satisfactory explanations by the Secretary showed it to have been impossible to refer the article to me on account of lack of time. The deleted matter consisted principally of a ballistic table, and references thereto, of 12-inch, 14-inch and 16-inch 50 caliber guns. In my opinion, the analysis of this table had a very important bearing on the conclusions reached and I am sorry the Navy Department considered them as trespassing on the confidential.

Typographical errors:

Page 1091, last column of table—caption, omit word "pound."

Page 1099, fifth line from bottom, change "forts" to "ports."

U. S. NAVAL INSTITUTE

SECRETARY'S NOTES

Value of Membership in Naval Institute

The receipt of many applications for associate membership from participants in the recent volunteer cruise marks another step forward in the work of broadening the field of the Institute's usefulness. A quotation from a letter received from the executive officer of one of the vessels detailed for the cruise reads as follows: "As part of the training and instruction of the civilians embarked on this vessel for the civilian volunteer cruise, we have given a number of lectures and informal talks on various professional subjects, and on such occasions the NAVAL INSTITUTE PROCEEDINGS have been frequently brought into use. This has brought the Institute to the attention of these men and quite a number have expressed a desire to become members." A pertinent question received from a prospective applicant is "Of what value is membership in the Institute?" Another remark on the same subject is reported: "Membership consists only in paying two dollars for a magazine." The answer to these remarks is not entirely obvious, for the benefits of membership are not all tangible and visible, there is no club house, no annual banquet. The particular question above was answered as follows:

The value of membership consists not only in the receipt of the PROCEEDINGS, which contains articles and discussions on every conceivable topic connected with the growth and development of our naval service, Professional and War Notes and Reviews of books and periodicals dealing with professional and international subjects; but also in the fact that you become one, in spirit, of a community working for a definite, worthy purpose. The Institute justly claims to be the true medium for the expression of thought and opinion of those most interested in the naval branch of the government service, and the best way for one to express interest in the upbuilding of the navy is through an active, participating membership in the Institute. The Naval Institute should be to thoughtful people what the more popular types of illustrated magazines are to merely thinking people.

The Institute depends upon its members for material, solicits articles and discussions of articles from its members, and pays for such as are

accepted. Any increase in membership widens the field from which the Institute draws its material, and is an assurance not only of material well being, but of improvement in quality. The list of associate members is increasing rapidly, but, naturally, the Institute desires the support and backing of all those interested in naval affairs.

It may also be of interest to you to know that the Institute is a mutual organization, the object of which, as we conceive it, is to produce information on naval subjects at the lowest possible cost to the individual, from "landsman-for-training" through "midshipman" to the War College graduate. The PROCEEDINGS is published each year at such a loss that the subscriptions pay but half of the cost of production, the deficit being made up through the profit on text-books, the price of the text-books themselves being kept at the lowest possible point consistent with the welfare of the Institute. I hope the foregoing will explain why the Institute needs your membership and why you should be most anxious to be an active, sustaining member.

The "Rivadavia"; a Correction

The following letter of correction is gladly given prominence by the Institute; the account of the incident referred to was published under Professional Notes, page 1267 of Whole Number 164, as a quotation from news sources:

SIR: My attention has been called to the fact, that various publications in this country have published a news item, to the effect that the Argentine battleship *Rivadavia* had suffered extensive damage through stranding in the harbor of Bahia Blanca. I would appreciate very much that you be kind enough to give publicity to this letter in the valued review under your direction, UNITED STATES NAVAL INSTITUTE PROCEEDINGS, to refute the veracity of this rumor. In the recent review of warships of the Argentine and foreign countries in the roadstead of the Plata River, in celebration of the centenary of the independence of the Argentine Republic, the Argentine dreadnought *Rivadavia* led the column of warships, and during the trip between Puerto Militar and Buenos Aires, reached a speed of 22½ knots per hour, as in trials.

Thanking you very much for your kindness, I am sir,

Very respectfully,

C. DAIREAUX,

Captain-President of the Argentine Naval Commission.

Suggestions Invited

It is believed that the scope of usefulness of the PROCEEDINGS to members of the Institute can be increased and all members are invited to assist in this work. Should any topic occur to you on which you think an article could well be written, or on which you would like to read one, send such topic to the Secretary and Treasurer,

together with such explanation or comment as may appear desirable in order that the intent of the suggestion may be clearly understood. The Institute is desirous of obtaining good "sea yarns" for publication. It is hoped that anyone who can spin such a yarn will submit it.

Illustrations

Authors of articles submitted are urged to furnish with their manuscript any illustrations they may have in their possession for such articles. The Institute will gladly co-operate in obtaining such illustrations as may be suggested by authors.

Original photographs of objects and events which may be of interest to our readers are also desired.

Bureau of Information

The Institute offers its services as a "Bureau of Information" on professional questions and will endeavor to obtain replies from the best qualified sources. Those "Questions and Answers" which are suitable for purposes of general information, will appear in the PROCEEDINGS. It is suggested that knotty questions which come up in professional examinations for promotion may well be submitted to this department.

Membership

Since July 15, 1916, 1 life, 13 regular and 65 associate members have joined the Institute, subject to approval at the annual meeting, October 12, 1916. The following additional losses in membership through death are announced:

Dr. Thomas Biddle.
Lieutenant L. T. Cutter, U. S. C. G.

Change in Board of Control

The resignation of Commander Ralph Earle, U. S. Navy, from membership in the Board of Control, impelled by detachment from the Naval Academy under orders to duty Inspector of Ordnance In Charge, Naval Proving Ground, Indian Head, is announced with deep regret.

Notice

Whole Nos. 145, 146, 147, 149 and 155 of the PROCEEDINGS (March, 1913, June, 1913, September, 1913, January-February, 1914, and January-February, 1915) are exhausted; there are so many calls for single copies of these numbers that the Institute offers to pay for copies thereof returned in good condition at the rate of 25 cents per copy.

Address of Members

Members, especially those on the retired list, and civilians are urged to keep the Secretary and Treasurer informed of the address to which PROCEEDINGS are to be sent, and thus insure their receipt.

Book Department

The Institute Book Department will supply any obtainable book, of any kind, at retail price, postage prepaid. The trouble saved the purchaser through having one source of supply for all books, should be considered. The cost will not be greater and sometimes less than when obtained from dealers. Bills will be rendered upon delivery of books.

Annual Dues

The annual dues for 1916 became payable on January 1, 1916. It is suggested that dues be paid in lump sums covering a period of two to five years; this method of payment has advantages for members as well as for the Institute and is practised by a number of members, both regular and associate. Response to this notice will save the Institute a considerable sum in stationery and postage. Beginning January 1, 1916, members residing abroad permanently or for any length of time will be charged postage at the rate of fifty cents a year.

Non-receipt of Proceedings

Members and subscribers are urged to notify the Secretary and Treasurer promptly of the non-receipt of PROCEEDINGS, in order that tracers may be started. The issue is completed by the 10th of the even numbered month.

Reprints of Articles

The attention of authors of articles is called to the fact that the cost to them of reprints other than the usual number furnished, can be greatly reduced if the reprints are struck off while the article is in press. They are requested to notify the Secretary and Treasurer of the number of reprints desired when the article is submitted.

Notice to Newsdealers

The discount to newsdealers is now 10 per cent, instead of the 25 per cent heretofore allowed on subscriptions.

ANNAPOLIS, MD., September 15, 1916.

BRITISH TRAWLER OPENING THE SUBMARINE NET ACROSS KIRKWALL HARBOR

This photograph is from the *New York Times*, which states that the picture was taken on July 30

PROFESSIONAL NOTES

Prepared by LIEUTENANT R. S. EDWARDS, U. S. Navy

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ARGENTINA

DAMAGE TO "RIVADAVIA." The reported damage to the *Rivadavia* is denied in a letter, published in the Secretary's Notes, from the President of the Argentine Naval Commission.

AUSTRIA

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Ersatz Mon'ch	24,500	22½	10 14-in.	Trieste	Laid down, 1914
" Budapest	24,500	22½	same	"	" " 1914
" Wien....	24,500	22½	same	Fiume	" " 1914
" Hapsburg	24,500	22½	same	Trieste	" " 1915

VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED

1 Battleship					
Szent Istvan..	20,010	20	12 12-inch	....	Completed in 1914
5 Light Cr'sers					
Saida class....	3,454	27	9 4.1-in., 2 6-pdrs.	....	Completed in 1914-15

NOTE.—Approximately 24 torpedo boats and six submarines were building in July, 1914. Official information regarding naval matters being unobtainable since the outbreak of war, it may be assumed that ship yards have been kept busy to their utmost capacity, and that new vessels have been laid down as fast as those building have been completed.

FRANCE

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Languedoc	24,828	21.5	12 13.4-in., 24 5.5-in.	La Seyne	Laid down April 28, 1913
Normandie	24,828	21.5	same	St. Nazaire	" July 5, 1913
Flandres	24,828	21.5	same	Brest	" Oct. 10, 1913
Gascogne	24,828	21.5	same	Lorient	" Oct. 1, 1913
Bearn	24,828	21.5	same	La Seyne	Contract Jan. 7, 1914
VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED					
3 Battleships					
Bretagne class.	23,172	20	10 13.4-inch	....	Completed in 1915

NOTE.—There are approximately six destroyers and 23 submarines under construction. (Lack of information since outbreak of war has made it impossible to correct table to date.)

In July, 1914, France had building approximately 3 destroyers and 22 submarines.

Since the outbreak of war it is probable that France has increased her construction program to the extent permitted by the building facilities.

GERMANY

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Ersatz Worth	29,000	....	8 15-in., 16 5.9-in.	Kiel	Laid down Sept., 1913
"T" 1913	29,000	....	same	"	" May, 1913
Ersatz Friedrich III	30,000	....	8 15-in., 18 5.9-in.	....	" summer 1914
Cruisers of the Line					
Ersatz Hertha	28,000	28.5	8 12-in.	Wilhelmshaven	Laid down July, 1913
Ersatz Victoria Louise	.....	....	....	....	" summer 1914
VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED					
4 Battleships					
Grosser Kurfürst class	25,388	22	10 12-inch	....	Completed in 1914-15
2 Battle Cr's'rs					
Derfflinger class	28,000	27	8 12-inch	....	" " "
5 Light Cr'sers					
Ersatz Hela class	5,500	27.5	10 6-inch	....	" " "

NOTE.—In July, 1914, Germany had building approximately 24 destroyers and 18 submarines.

No accurate information regarding naval matters has been obtained since the outbreak of the war, but it is reported that ship construction has been pushed to the full extent of building facilities.

NEW ZEPPELINS.—In a speech delivered at Bury St. Edmunds last night, Baron Montagu of Beaulieu, former vice chairman of the joint Naval and Military Board, told of new monster super-Zeppelins which Germany was building.

"We have obtained some details of the super-Zeppelins which Germany is now building," said Baron Montagu. "The principal features of the craft are a capacity of 2,000,000 cubic feet, a length of 780 feet, a beam of 80 feet, and a maximum speed of 80 miles an hour, a cruising speed of 35 miles an hour and a radius of action of 3000 miles. The engines, six or seven of them, have a total of 15,000 horse-power.

"The airships can carry a load of bombs of five tons, and are able to ascend 17,000 feet. They are armed with machine guns at bow and stern and on top of the envelope. They carry a crew of 35 men.

"These particulars show how largely the Germans are relying on Zeppelins as a means for harassing us. Two of these new craft have already been completed and four will be available in October."—*New York Times*, 24/8.

GREAT BRITAIN

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
1 Ship	27,500	25	8 15-inch	.....	To be completed in 1917
Renown	25,750	22	same	.....	" " "
Repulse	25,750	22	same	.....	" " "
Resistance	25,750	22	same	.....	" " "
Revenge	25,750	22	same	Vickers	" " in 1916
Resolution	25,750	22	same	Palmer	" " "
Ramillies	25,750	22	same	Beardmore	" " "

VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED

Battleships					
2 Rev'nge class	25,750	22	8 15-inch	.....	Completed 1915
5 Queen Elizabeth class	27,500	25	same	.....	" 3 in '15; 2 in '14
1 Battle Cr'ser					
Tiger	30,000	30	8 13.5-inch	.....	" in 1914
Light Cruisers					
8 Cl'p'tra class	4,400	30	....	.....	" " 1914-15
6 Arethusa class	3,600	30	....	.....	" " "
3 Birmingham class	5,440	25.5	....	.....	" " 1914

NOTE.—Approximately 31 destroyers and 21 submarines were building in July, 1914. Since the war no official information regarding naval matters has been available, but it has been reported that the number of vessels building has been increased to the full capacity of the ship yards and that new vessels have been laid down as fast as those building have been completed. Also it has been reported that five large battle cruisers of 32 knots speed are nearing completion and that a number of monitors carrying 14-inch guns are either built or building.

NEW BRITISH SUBMARINES.—It is understood that the British Admiralty has in view a new type of submarine—the *G* class—with powerful equipment. The *F* class which has been built of late has a submerged displacement of 1200 tons, for surface propulsion Diesel engines aggregating 5000 horse-power were designed, and for submerged propulsion electro-motors of 2000 horse-power. The *F* boats, approximately, would have a length of 225 feet, submerged displacement 1500 tons, surface speed 24 knots oil engines, 6500 horse-power, and electric engines 2400 horse-power.—*Page's Engineering Weekly*, 11/8.

WAR STRIPES ADDED TO BRITISH NAVAL UNIFORM.—A strip of gold braid is to be worn on the left sleeve to distinguish British officers and men who

have been wounded, the number of stripes denoting the number of times the wearer has been wounded.

REPAIR OF SHIPS DAMAGED IN BATTLE.—As proof of the efficiency of organization of the British Admiralty, *Engineering* (London) states that within 10 days after the Jutland battle, even the most seriously damaged of the British ships engaged was ready to return to the attack, and the great majority of them were ready with renewed munition and other supplies within 24 hours. This result was achieved by a completely organized system of preparedness. Before the ships reached their base there was full knowledge at the Admiralty as to the extent of damage done, and exact information, for instance, of plates to be renewed either in hull, funnel of superstructure, and of new parts of machinery to be replaced. Indeed, the work of producing the plates and of getting new units of machinery was in progress before the ship reached her base or the private establishment to which she was signalled to proceed. It is added that the oxy-acetylene process for cutting plates and for welding has proved of wonderful utility. In other instances a heavy burden was cast on the turbines, particularly in the case of the *Warspite*, because of the steering machinery being put out of action; but this ship, which the Germans claimed to have sunk, steamed back to her destination at 21 knots speed, the turbines being used also for maneuvering instead of the rudder.—*Shipping Illustrated*, 10/8.

HOLLAND

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Cruisers					
.....	7000	30	10 6-in.	Amsterdam	Authorized
.....	7000	30	10 6-in.	Flushing	Authorized

NOTE.—Four submarines are building, three at Rotterdam and one at Flushing, of 836 tons displacement and a surface speed of 17½ knots.

ITALY

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Carraciolo.....	30,000	25	8 15-in., 16 6-in.	....	To be completed in 1917
Marcantonio-Colonna	30,000	25	same	....	" " "
Cristofaro-Colombo	30,000	25	same	....	" " "
Francesco-Marosini	30,000	25	same	....	" " "

VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED

Battleships					
Conte-di-Cavour	22,022	22.5	13 12-inch	....	Completed in 1914
2 Duilio class....	22,564	22.5	13 12-inch	....	" " 1915
Light Cruisers					
2 Campania class	2,500	16.5	6 6-inch	....	" " "

NOTE—In July, 1914, approximately 15 destroyers, 2 torpedo boats, and 8 submarines were building.

It is probable that the building program has been accelerated and increased since the outbreak of the war.

JAPAN

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Yamashiro	31,300	22.5	....	Kawasaki	To be completed in 1916
Ise	31,300	22.5	....	Mitsubishi	" " " "
Hinga	31,300	22.5	....	Yokosuka	" " " 1917

VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED

1 Battleship					
Fuso	30,600	22	12 14-inch	.....	Completed in 1915
2 Battle Cr's'rs					
Haruna class	27,500	28	8 14-inch	.....	" " " 1914-15

NOTE.—In July, 1914, Japan had 2 destroyers and 2 submarines under construction in England and France, respectively.

JAPAN'S BUILDING PROGRAM.—According to the Japanese press there are five modern super-dreadnoughts either built or building in Japan, and the navy will request authority to build three more within the next seven years. The program is also said to include two new battle cruisers within the same period. The battleships may not, in speed, come up to the *Queen Elizabeth*, but will possess a 10 per cent superiority in gun power. The new battle cruisers will slightly surpass in speed the German *Hindenburg*, but will fall behind the projected American battle cruisers, though the Japanese warships will be greater in gun power. The light cruisers will exceed the British *C* class of cruisers both in speed and guns. The destroyers will be of the type of the *Urakaze, Kawakaze*, and *Tokithukaze* now in commission. The submarines are to include those that can make a continuous sea voyage of three or four thousand miles or even more. The Japanese naval officials explained that the naval program is only in the formative stage and that statements in the press can only be surmises.—*Army and Navy Journal*, 26/8.

ADMIRAL KAMIMURA DEAD.—Tokyo, August 8. The death is announced of Admiral Kamimura, Supreme Councillor of the Admiralty.—*Reuter.* . . . . Admiral Baron Hikonojo Kamimura was born in May, 1849, at Kagoshima, Satsuma, which has also the honor of being the birthplace of Admiral Togo and of other well-known Japanese naval heroes. He joined the navy in September, 1871. During the war with China he commanded the cruiser *Akitsushima*, at first as commander and later as captain, to which rank he was promoted in recognition of his merits. Rear admiral in 1899, he was appointed to an administrative post in the Admiralty. In 1903 he became vice admiral and chief of the Educational Bureaux.

During the Russo-Japanese War in 1904-5 he commanded the armored cruiser squadron. The position corresponded to that held by Admiral Beatty in the present war. It is noteworthy, too, that Admiral Kamimura displayed the same fighting qualities as the British admiral in his successful encounter with the Vladivostok squadron in August, 1905, when the *Rurik* was sunk and the *Gromoboi* and the *Rossiya* were seriously damaged. In 1907 he was created a baron. He was promoted admiral in 1910, and later

he joined the Supreme War Council. He was a great lover of England, where he spent three years (1900-3) as chief Japanese naval inspector.—*London Times*, 9/8.

SALVAGE OF THE JAPANESE ARMORED CRUISER "ASAMA."—We reproduce the illustrations which accompanied an interesting paper read at the meeting of the Japanese Society of Naval Architects at Tokyo, on April 10 last, by Captain M. Iwano, Captain T. Urata, and Commander Y. Hashiguchi (all constructors in the Imperial Japanese Navy), dealing with the salvage of the armored cruiser *Asama*, which went ashore on the rocks at the entrance of the Gulf of San Bartolomé, Turtle Bay, South California, Mexico.

The *Asama* was constructed at the Elswick Yard of Messrs. Sir W. G. Armstrong, Whitworth & Co., Limited, and was completed in 1899. She is an armored cruiser, 408 feet long, 67 feet beam, and has a displacement of 9885 tons when drawing 24½ feet of water. Her armament consisted of four 8-inch guns, fourteen 6-inch guns, and 20 lighter guns. Her speed on trial was 21.1 knots with 19,000 horse-power.

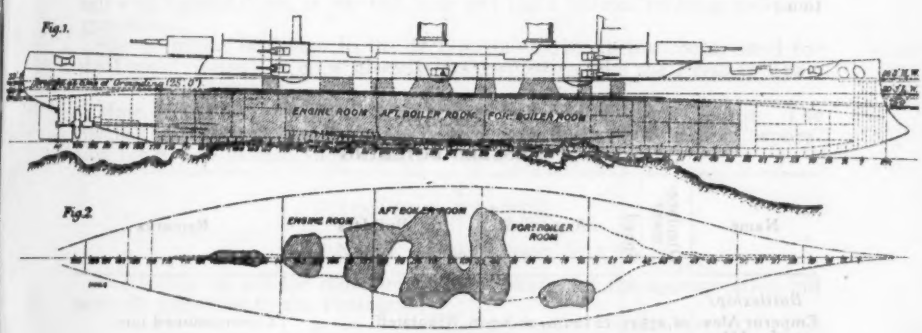
The *Asama* went aground on January 31 of last year. Examination proved that she was flooded throughout her length to the level of the protected deck, with the exception of those parts forward and aft unstippled in Fig. 1. She was resting on six projecting rocks in a position exposed to all changes of weather, and at low water her draft was 21 feet. The damage above water was slight, but the bottom of the vessel had a series of holes made by the rocks, as shown in the plan, Fig. 2. In the forward boiler room, on the starboard side, there was a hole 25 feet long, but the largest opening was an irregular tear under the forward boiler room, throughout the aft boiler room, and in the engine room, the length being 80 feet. The inner bottom in this case was forced upwards throughout most of its length, the maximum height being 2 feet, while the holes had a maximum length of 30 feet. The bulkheads in this damaged portion were severely buckled at their base.

Temporary pumps were brought from Japan, six of large capacity, and several of smaller power, in addition to pulsometers. These pumps were supplied with steam from boilers temporarily installed on the upper deck, the pumps themselves being located on the protected deck below. The total capacity of the pumps was 6750 tons per hour. The salvage operations were commenced in April, 1915, the two after 8-inch guns with their ammunition having been removed. The long tear in the bottom under the forward boiler room was covered by steel plates formed from templates taken by the diver. Other rents were dealt with in a more temporary manner. The hatches in the middle deck were also increased in height, in order to keep the upper part of the ship free from water when the tide rose. Large canvas sheets were also held in readiness to cover over holes as the ship lightened. The pumping proved fairly successful at the forward end of the damaged part of the ship, but was less so aft. It was found that much water entered the machinery spaces, but nevertheless the pumps obtained an advantage to the extent of 1700 tons of water per hour, showing that the influx was still 5000 tons per hour. There was no rush of water anywhere, which further proved that the damage to the bottom was spread over a wide area.

A general plan of operations was devised as a result of this preliminary work, and, later, the incoming flow of water was reduced to 4600 tons per hour, and still later to 3400 tons. Calculation on this basis proved that with the foremost compartment full and 11 feet of water in the next compartment the ship could be floated. Floating was therefore effected on May 8, and the ship towed off the rocks. Canvas mats had been applied to reduce the influx of water. Three pumps were then sufficient to keep the water to a level

not exceeding 2 feet over the inner bottom. It was then possible to make a fuller inspection of the damage done, and it was found that in the fore boiler room the inner bottom was forced upwards an average of 1 foot, the floor plates being much bent over, while the bulkhead between the two boiler rooms was damaged. In the after boiler room the inner bottom was up to an extent of 3 feet or 4 feet; at one point the plating of the inner bottom was torn very considerably. The center line bulkhead through the boiler rooms was buckled at the bottom, and the transverse bulkhead between the after boiler room and the engine room was separated from the inner bottom. The damage in the engine room was not so severe, but the center line of the engines was much out of truth, and there were many holes in the outside plating.

After the ship had been floated off the rocks the work of providing for the exclusion of water was continued. Blankets were wrapped over the openings more thoroughly than had been previously possible with the canvas, 6-inch wide battens being utilized, and these were held in place by



THE SALVAGE OF THE JAPANESE ARMORED CRUISER "ASAMA"

Figs. 1 and 2. Longitudinal section and plan to show vessel on the rocks and damage to bottom

wire ropes encircling the ship. The damage to the inner bottom was repaired in order to prevent danger from suction while more permanent work was being executed on the outer shell. Flanged plates were used, fortified by cement, to connect the bulkheads with the inner bottom, and new stiffeners, where necessary, were introduced on the bulkheads.

The most interesting part of the work, however, was the fitting of box patches, built up of plates and angles, to the outside shell where seriously damaged. These box patches varied according to the size of the hole to be covered. In one case the length was 36 feet, in another the dimensions were 23 feet 8 inches by 24 feet 9 inches, and in a third—that under the engine room—the dimensions were 16 feet by 12 feet.

These boxes having been put in position, the ship's own pumps were brought into action to keep the machinery compartments dry, while repairs to the machinery were commenced on June 21 and completed on August 10, sufficiently to enable the vessel to proceed under her own steam. To avoid risk of pressure on the inner bottom, rough coamings were built around the manholes, and the salvage pump suctions were carried down through these. The ship left San Bartolomé on August 23, arriving in three days at another port along the coast.—*Engineering*, 4/8.

PORTUGAL

EFFECTIVE VESSELS IN PORTUGAL'S NAVY

Name	Displacement	Speed	Armament	Complement	Remarks
Battleships					
Vasco Da Gama	3,000	15	2 8-inch, 4 4.7-inch	220	Completed in 1877; refitted in 1903.
Cruisers					
Republica.....	1,640	17.5	4 5.9-in., 2 3.9-in.	273	Completed in 1901.
Sao Gabriel....	1,772	17	2 5.9-in., 4 4.7-in.	242	" " 1899.
Alnurarite Reis	4,100	22	4 5.9-in., 8 4.7-in.	473	" " "
Adamaster....	1,962	18	2 5.9-in., 4 4.7-in.	232	" " 1897.

NOTE.—In addition to the above Portugal has 5 gunboats, 6 destroyers, 3 torpedo-boats, and 1 submarine. (2 gunboats, 2 destroyers, and 3 submarines are in process of construction.)

RUSSIA

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Emperor Alexander III	22,435	21	12 12-in., 20 4.7-in.	Nikolaieff	Commissioned 1915
Empress Marie	22,435	21	same	Ivan Bunge Co.	" 1914
Catherine II...	22,435	21	same	" " "	" 1915
Battle Cruisers					
Ismail.....	32,200	25	12 14-in., 21 5.1-in.	Galerni	To be completed in 1916 [1]
Kinburn.....	32,200	25	same	Baltic Works	" " "
Borodino.....	32,200	25	same	Galerni	" " "
Navarin.....	32,200	25	same	Baltic Works	" " "

VESSELS BUILDING IN JULY, 1914, AND NOW COMPLETED

Battleships					
4 Sevastopol class	23,026	23	12 12-inch	....	Completed in 1914
Light Cruisers					
6 Adm'l Greig class	7,500	32	....	....	" " 1914-15
2 Ad. Nevelskoi class	4,500	..	....	....	" " "

[1] Three completed.

NOTE.—Approximately 44 destroyers and 19 submarines were building in July, 1914. Official information regarding naval matters being unobtainable since the outbreak of war, it may be assumed that the ship yards have been kept busy to their utmost capacity and new vessels have been laid as fast as those building have been completed.

SPAIN

VESSELS BUILDING

Name	Displacement	Speed	Armament	Builders	Remarks
Battleships					
Alfonso XIII..	15,450	19.5	8 12-in., 20 4-in.	Ferrol	Launched May 7, 1913
Jaime I.....	15,450	19.5	same	"	Laid down Feb. 5, 1912

NOTE.—Spain's building program includes the following: 4 fast cruisers, 6 destroyers 28 submarines, 3 gunboats, and 18 coast-guard mine layers.

SPANISH SUBMARINE LAUNCHED AT QUINCY.—The submarine *Isac Peral,* said to be the first war craft ever built in this country for Spain, was launched at the yards of the Fore River Shipbuilding Corporation here to-day. The vessel, named for a Spanish inventor who experimented years ago with submersibles, is 200 feet long and has a normal cruising radius of 3500 miles.

She is similar in design to the *M* type submarine, being constructed for the United States. A crew already has arrived to take the *Peral* to Spain under her own power.

Mme. Juan Riano, wife of the Spanish Ambassador, was sponsor. The Spanish Government is said to have contracted with the Fore River Corporation for five additional submarines.—*New York Times,* 21/7.

UNITED STATES

THE NAVAL APPROPRIATION BILL

The following are the more important features of the appropriation bill as finally approved by the President:

THE BUILDING PROGRAM

For the purpose of further increasing naval establishment of United States, the President is authorized to undertake prior to July 1, 1919, construction of vessels enumerated below:

Battleships.—Ten first-class battleships, carrying as heavy armor and powerful armament as any vessels of their class, to have highest practicable speed and greatest desirable radius of action; four of these at a cost, exclusive of armor and armament, not to exceed $11,500,000 each, to be begun as soon as practicable.

Battle Cruisers.—Six battle cruisers, carrying suitable armor and as powerful armament as any vessels of their class, to have highest practicable speed and greatest desirable radius of action; four of these to cost, exclusive of armor and armament, not to exceed $16,500,000 each, to be begun soon as practicable.

Scout Cruisers.—Ten scout cruisers, carrying suitable protection and armament suited to their size and type, to have highest practicable speed and greatest desirable radius of action; four to cost, exclusive of armor and armament, not to exceed $5,000,000 each, to be begun soon as practicable.

Destroyers.—Fifty torpedo-boat destroyers, to have highest practicable speed and greatest desirable radius of action; 20 to cost, exclusive of armor and armament, not to exceed $1,200,000 each, to be begun soon as practicable; not less than four of these shall be built on Pacific coast, provided cost of construction on Pacific coast does not exceed cost of construction on Atlantic coast, plus cost of transportation Atlantic to Pacific.

VESSELS BUILDING AND AUTHORIZED

Name	Displacement	Speed	Main battery	Where building	% completed Sept. 1, 1916	Remarks
Battleships						
Arizona	31,400	21	12 14-in.	New York	98.8	
New Mexico	32,000	21	12 14-in.	New York	43.5	
Mississippi	32,000	21	12 14-in.	Newport News	53.5	
Idaho	32,000	21	12 14-in.	Camden	63.4	
Tennessee	32,000	....	8 16-in.	New York	0	
California	32,000	....	8 16-in.	Mare Island	1.7	
No. 45, 46, 47, 48	32,600	21	8 16-in.	Contracts not let	....	To be begun as soon as practicable.
49, 50, 51, 52, 53, 54	Characteristics not determined				....	To be begun by July 1, 1919.
Battle Cruisers						
No. 1, 2, 3, 4	Characteristics not determined				....	To be begun as soon as practicable.
5, 6	Characteristics not determined				....	To be begun by July 1, 1919.
Scout Cruisers						
No. 4, 5, 6, 7	7,100	35	8 6-in.	Contracts not let	....	Each carries 4 aeroplanes.
8, 9, 10, 11, 12, 13	Characteristics not determined				....	To be begun by July 1, 1919.
Destroyers						
Davis	1,075	30	4 4-in.	Bath	94.0	4 twin tubes.
Allen	1,075			Bath	88.5	
Wilkes	1,110			Cramp's	86.5	
Shaw	1,110			Mare Island	57.3	
Caldwell	1,050			Mare Island	11.3	
Craven				Norfolk	7.5	
Gwin				Seattle	9.8	
Conner				Cramp's	9.7	
Stockton				Cramp's	9.0	
Manley				Bath	19.5	
20 (Nos. 75–94)	1,185	35	4 4-in.	Not ordered	....	4 triple tubes. To be begun as soon as practicable.
30 (Nos. 95–124)	Characteristics not determined				....	To be begun by July 1, 1919.
Gunboats						
1	1,575	12	3 4-in.	Not ordered	....	To be begun as soon as practicable.
1	Characteristics not determined				....	To be begun by July 1, 1919.

Submarines

Building, 35.

Authorized to be begun at once:— 9 fleet submarines.
3 800-ton coast defence submarines.
27 smaller coast defence submarines.

Authorized to be begun by July 1, 1919:—28 coast defence submarines.
1 Neff submarine.

Vessels of the train.

Building and authorized:—

4 fuel ships,
1 supply ship,
2 ammunition ships,
1 hospital ship,
1 repair ship,
2 transports,
2 destroyer tenders,
1 fleet submarine tender.

Submarines.—Nine fleet submarines.

Fifty-eight coast submarines, of which number three to have surface displacement of about 800 tons each, to cost, exclusive of armor and armament, not to exceed $1,200,000 each, and 27, which shall be best and most desirable and useful type of submarine which can be procured at cost, exclusive of armor and armament not to exceed $700,000 each, shall be begun soon as practicable; $8,217,000 is appropriated for construction of said submarines, to be available until expended. Not less than 12 of submarines herein authorized, to be begun soon as practicable, shall be built on Pacific coast, provided cost of construction on Pacific coast does not exceed cost of construction on Atlantic coast, plus cost of transportation Atlantic to Pacific.

One submarine, equipped with Neff system of submarine propulsion, exclusive of armor and armament, $250,000: Provided, That owners of Neff system will construct, in accordance with drawing, plans, and specifications provided by them, one coast defence submarine of about 150 tons displacement when submerged, carrying armor and armament similar and equal to that of *C* class submarines, with fittings, equipment, machinery, devices, appliances, and appurtenances of every kind with latest improvements, complete in all respects, and suitable for naval purposes: Provided further, That money appropriated for this purpose shall not be paid to builders of said boat until same has been completed, passed satisfactory service tests, and been accepted by Secretary of Navy; upon such completion, tests, and acceptance by Secretary of Navy sum appropriated shall be paid.

Auxiliaries.—Three fuel ships, one at cost not to exceed $1,500,000, to be begun soon as practicable; one repair ship; one transport; one hospital ship, at cost not to exceed $2,350,000, to be begun as soon as practicable; two destroyer tenders; one fleet submarine tender; two ammunition ships, one at cost, exclusive armor and armament, not to exceed $2,350,000, to be begun soon as practicable.

Gunboats.—Two gunboats, one at cost, exclusive of armor and armament, not to exceed $860,000, to be begun soon as practicable.

Contracts.—The 66 vessels directed herein to be begun soon as practicable shall be contracted for or shall be begun in navy yards within six months from date of approval of this act. The Secretary of Navy shall build any of vessels herein authorized in such navy yards as he may designate should it reasonably appear that persons, firms, or corporations, or agents thereof, bidding for construction of any of said vessels have entered into any combination, agreement, or understanding the effect, object, or purpose of which is to deprive government of fair, open, and unrestricted competition in letting contracts for construction of any of said vessels: Provided, That Secretary of Navy is hereby authorized to build any of vessels herein authorized in such navy yards as he may designate.

Construction and Machinery.—On account of hulls and outfits of vessels and machinery of vessels heretofore and herein authorized, to be available until expended, $59,000,194.

Increase of the Navy, Torpedo-boats.—On account of submarine torpedo-boats heretofore authorized, to be available until expended, $5,282,593.

Increase of the Navy, Armor and Armament.—Toward armor and armament for vessels heretofore and herein authorized, to be available until expended, $47,110,000.

Increase of the Navy, Ammunition.—Toward ammunition for vessels herein authorized, to be available until expended, $19,485,500.

Total increase of navy heretofore and herein authorized, $139,345,287.

OTHER SHIPBUILDING PROVISOS

Repairing Capital Ships.—The statutory limit of $200,000 for repairs and changes to capital ships of the navy, as provided in act of March 2, 1907, is changed to $300,000.

The Secretary of Navy is authorized to sell any or all auxiliary ships of navy classified as colliers, transports, tenders, supply ships, special types, and hospital ships, which are 18 years and over in age, which he deems unsuited to present needs of navy and which can be disposed of at an advantageous price, which shall not be less than 50 per centum of orginal cost money obtained from sale to be covered into treasury as miscellaneous receipts.

Speeding up Construction.—To provide for speedy construction of vessels herein authorized and for additional cost incident thereto, including employment of more than one shift of labor per day, overtime work, and speedy delivery of material, Secretary of Navy is authorized to increase total cost of each of said vessels, including armor and armament, not to exceed 20 per centum thereof if any of said vessels be constructed in government navy yards; and if any of said vessels or the armor or armament for same be constructed by private contract, Secretary of Navy is authorized to prescribe in contracts for same provisions for payment of premiums over and above contract price, not to exceed 20 per centum thereof, for most expeditious delivery of same, and further provisions for penalties for delays and failure to complete within contract time: Provided, That if, in judgment of Secretary, most rapid and economical construction of battle cruisers authorized herein can be obtained thereby, he may contract for construction of any or all of them upon basis of actual cost, plus a reasonable profit to be determined by him.

Arbitration and Disarmament.—It is hereby declared the policy of United States to adjust and settle its international disputes through mediation or arbitration, that war may be honorably avoided. It looks with apprehension and disfavor upon a general increase of armament throughout the world, but realizes that no single nation can disarm, and that without a common agreement upon the subject every considerable power must maintain relative standing in military strength. In view of the premises, the President is authorized and requested to invite, at an appropriate time, not later than close of war in Europe, all the great governments of the world to send representatives to a conference which shall be charged with the duty of formulating a plan for a court of arbitration or other tribunal, to which disputed questions between nations shall be referred for adjudication and peaceful settlement, and to consider question of disarmament and submit their recommendation to their respective governments for approval. The President is authorized to appoint nine citizens, who in his judgment shall be qualified for the mission by eminence in the law and by devotion to the cause of peace, to be representatives of United States in such a conference. Two hundred thousand dollars is appropriated. If at any time before construction authorized by this act shall have been contracted for there shall have been established, with cooperation of United States of America, an international tribunal or tribunals competent to secure peaceful determinations of all international disputes, and which shall render unnecessary maintenance of competitive armaments, then and in that case such naval expenditures as may be inconsistent with engagements made in establishment of such tribunal or tribunals may be suspended, when so ordered by President of United States.

The Secretary of Navy is directed to submit to Congress during next regular session a report on largest battleship which can be undertaken in United States in present state of shipbuilding and engineering sciences and arts, giving due consideration to present and prospective depths and other limiting dimensions of docks and harbors of United States and its possessions and of locks of Panama Canal, and he shall further report principal characteristics of such a vessel, giving displacement, cost, number and size of guns, thickness of armor, speed and cruising radius, and he shall further report on desirability of building one or more such vessels.

PERSONNEL

Chief of Naval Operations an Admiral.—Hereafter chief of naval operations, while so serving as such chief, shall have rank and title of admiral, rank next after the admiral of the navy, and shall, while so serving as chief of naval operations, receive $10,000 per annum and no allowances. All orders issued by chief of naval operations in performing duties assigned him shall be performed under authority of Secretary of Navy, and his orders shall be considered as emanating from Secretary, and shall have full force and effect as such. To assist chief of naval operations there shall be assigned for this exclusive duty not less than 15 officers of and above rank of lieutenant commander of navy or major of marine corps: Provided, That if an officer of grade of captain be appointed chief of naval operations he shall have rank and title of admiral, as above provided, while holding that position: Provided further, That should an officer, while serving as chief of naval operations, be retired from active service he shall be retired with lineal rank and retired pay to which he would be entitled had he not been serving as chief of naval operations.

Recruiting by Postmasters.—The President is authorized to utilize services of postmasters of second, third and fourth classes in procuring enlistment of recruits for navy and marine corps, and for each recruit accepted for enlistment in navy or marine corps, postmaster procuring his enlistment shall receive $5.

California Aviation and Naval Base.—The Secretary of Navy is authorized to purchase 232 acres of land in San Diego County, Cal., for aviation purposes: Provided, That at same time the city of San Diego donates, free of encumberance, a parcel of 500 acres of adjoining tide lands of Bay of San Diego, without cost to the United States, for a naval base.

Experimental and Research Laboratory.—For laboratory and research work on gun erosion, torpedo motive power, gyroscope, submarine guns, protection against submarine, etc., etc., for benefit of government service, including construction, equipment and operation of a laboratory, and employment of scientific civilian assistants (limit of cost not to exceed $1,500,000), $1,000,000: Provided, That nothing herein shall be construed as preventing or interfering with continuation or undertaking of necessary experimental work during year ending June 30, 1917, as heretofore conducted under other appropriations.

Strength of Hospital Corps.—Hereafter authorized strength of hospital corps of navy shall equal three and one-half per centum authorized enlisted strength of navy and marine corps, and shall be in addition thereto, and as soon as necessary transfers or appointments may be effected hospital corps of United States Navy shall consist of following grades and ratings: Chief pharmacists, pharmacists and enlisted men classified as chief pharmacists' mates; pharmacists' mates, first class; pharmacists' mates, second class; pharmacists' mates, third class; hospital apprentices, first class, and hospital apprentices, second class; such classifications in enlisted ratings to correspond respectively to enlisted ratings, seamen branch, of chief petty officers; petty officers, first class; petty officers, second class; petty officers, third class; seamen, first class, and seamen, second class: Provided, That enlisted men of other ratings in navy and in marine corps, shall be eligible for transfer to hospital corps, and men of that corps to other ratings in navy and marine corps.

The President may hereafter, from time to time, appoint as many pharmacists as may be deemed necessary, from rating of chief pharmacist's mate, subject to such moral, physical and professional examinations and requirements as to length of service as Secretary of Navy may prescribe: Provided, That pharmacists now in hospital corps, United States Navy, or hereafter appointed therein in accordance with provisions of this act, shall have same rank, pay and allowances as are now or may hereafter be allowed other warrant officers.

Pharmacists shall, after six years from date of warrant, be commissioned chief pharmacists after passing satisfactory examinations, and shall, when so commissioned, have same rank, pay and allowances as are now or may hereafter be allowed other commissioned warrant officers: Provided, That pharmacists at present in service who have served or may hereafter serve six or more years in that grade shall be eligible for promotion to grade of chief pharmacist upon satisfactorily passing examinations provided for in this act.

The Secretary of the Navy is hereby empowered to limit and fix the numbers in the various ratings.

Pay in Hospital Corps.—Sec. 3. Act to organize a hospital corps of the navy, approved June 17, 1898, is repealed, and pay, allowances and emoluments of enlisted men of hospital corps shall be same as are now, or may hereafter be, allowed for respective corresponding ratings, except rating of turret captain of first class in seaman branch of navy: Provided, That pay of rating of chief pharmacist's mate shall be same as that now allowed for existing rating of hospital steward.

Hospital and ambulance service with such commands and at such places as may be prescribed by Secretary of Navy shall be performed by members of said corps, and the corps shall be a constituent part of medical department of navy; enlisted men thereof shall be part of enlisted force provided by law for navy.

Officers and enlisted men of medical department of navy, serving with body of marines detached for service with army in accordance with provisions of Sec. 1621, Rev. Stat., shall, while so serving, be subject to rules and articles of war prescribed for government of army in same manner as officers and men of marine corps while so serving.

Naval Dental Corps.—Authorizes appointing and commissioning navy dental surgeons at rate of one for each 1000 of authorized enlisted strength of navy and marine corps, who shall constitute naval dental corps, and be part of medical department. Original appointments shall be probationary for two years, revocable by President: Provided, That rank of officers of same date of appointment among themselves at end of probationary period shall be determined by competitive examination, based upon service record and professional attainments, and rank so determined shall be as of date of original appointment with reference to other appointments to naval service. All appointee dental surgeons shall be citizens between 24 and 30 years of age, graduates of standard medical or dental colleges and trained in dentistry, and shall, before appointment, pass moral, physical and professional examinations.

Dental surgeons shall have rank, pay and allowances of lieutenants (junior grade) until they shall have completed five years' service; between five and twenty years' service, subject to examinations, have rank, pay and allowances of lieutenant; more than 20 years' service, lieutenant commander; total number with rank, pay and allowances of lieutenant commander shall not at any time exceed ten.

All officers now in dental corps (including officers appointed for temporary service), appointed under act of August 22, 1912, and all officers now in active service appointed under provisions of act of March 4, 1913, who were eligible for appointment to dental corps under provisions of said act, shall be appointed dental surgeons in dental corps without further examination and without regard to age qualifications herein prescribed. Officers so appointed shall not be subject to provisions herein prescribed for probationary service. Such officers shall, after appointment as herein, rank from date of commission and take seniority among themselves in order of original appointment by Secretary of Navy as shown on navy list on date of approval of this act. No dental surgeon appointed in accordance with provisions of this act who on original appointment to dental corps was over 40 years of age shall be eligible for retirement before age of 70 years, except for physical disability, line of duty.

Dental surgeons who shall have lost numbers on navy list by sentence of court-martial or by failure upon examination for promotion shall be considered to have lost service accordingly for purposes of advancement in rank with increased pay and allowances.

Dental Reserve Corps.—A navy dental reserve corps is authorized to be organized and operated under provisions of act of August 22, 1912, providing for organization and operation of a navy medical reserve corps, and differing therefrom in no respect other than that qualification requirements of appointees shall be dental surgeons and graduates of reputable schools of medicine or dentistry instead of "reputable schools of medicine," and so many of said appointees may be ordered to temporary active service as Secretary of Navy may deem necessary to health and efficiency of personnel of navy and marine corps, provided whole number of both naval dental corps and naval dental reserve corps officers in active service shall not exceed in time of peace, one to 1000 of officers and enlisted men of navy and marine corps. All officers now in the navy dental reserve corps shall be recommissioned in navy dental reserve corps provided in this act, in order of original appointment in said corps, and hereafter when ordered to active duty officers of medical reserve corps and officers of dental reserve corps shall receive promotion in rank in respective reserve corps under same relative conditions and provisions of active service as provided in this act for naval dental corps.

NEW RATINGS—MORE MIDSHIPMEN

New Enlisted Ratings.—Enlisted strength of navy authorized in this act shall be deemed to include all enlistments heretofore made during this calendar year which may have been in excess of number authorized by law at time. The designation of rating of coal passer is changed to fireman, third class, and that of ordinary seaman to seaman, second class, without change of pay. Bureau of Navigation is authorized to advance printers to ratings of printer, first class, and chief printer, same pay and increase allowed to yeomen, first class, and chief yeomen, respectively; rating of storekeeper is established in artificer branch with following rates of pay per month: Chief petty officer, $50; petty officer, first class, $40; petty officer, second class $35; petty officer, third class, $30; subject to such increases of pay and allowances as are or may hereafter be authorized by law for enlisted men of navy.

More Midshipmen.—Hereafter in addition to appointment of midshipmen to United States Naval Academy, as now prescribed by law, the President is allowed 15 appointments annually instead of 10, and Secretary of Navy is allowed 25 annually, instead of 15, the latter to be appointed from enlisted men of navy, citizens of United States, not more than 20 years of age on date of entrance to Naval Academy, and who shall have served not less than one year as enlisted men on date of entrance. Appointments shall be made in order of merit from candidates who have in competition with each other passed mental examination now or hereafter required by law for entrance to Naval Academy, and who passed physical examinations required before entrance under existing laws.

Hereafter Secretary of Navy is authorized to permit not exceeding four Filipinos, to be designated one for each class, by Governor General of Philippine Islands, to receive instruction at Naval Academy at Annapolis, these Filipinos to receive same pay, allowances and emoluments and be subject to Academy rules and regulations, but shall not be entitled to appointment to commission.

NUMBER OF OFFICERS

Proportional Strength of Officers.—Hereafter total number of commissioned officers of active list of line of navy, exclusive of commissioned warrant officers, shall be 4 per cent of total authorized enlisted strength of

active list, exclusive hospital corps, prisoners under sentence of discharge, enlisted men duty with naval militia, and flying corps: Provided, That total number commissioned line officers on active list at any one time, exclusive commissioned warrant officers, shall be distributed in proportion of 1 of grade of rear admiral to 4 captains, to 7 commanders, to 14 lieutenant commanders, to 32½ lieutenants, to 41½ lieutenants (junior grade), and ensign, inclusive: Provided further, That lieutenants (junior grade) shall have had not less than three years' service in that grade before eligible for promotion to lieutenant.

Total authorized number commissioned officers active list following staff corps, exclusive commissioned warrant officers, shall be based on percentages total number commissioned officers, active list line of navy, as follows:

Pay corps, 12 per cent; construction corps, 5 per cent; corps of civil engineer, 2 per cent; and total authorized number of commissioned officers medical corps shall be .65 of 1 per cent total authorized number officers and enlisted men navy and marine corps, including midshipmen, hospital corps, prisoners under sentence of discharge, enlisted men duty naval militia, and flying corps. Officers lower grades medical corps, pay corps, construction corps and corps of civil engineers shall be advanced in rank up to and including lieutenant commander with officers of line with whom or next after whom they take precedence under existing law: Provided, That all assistant surgeons shall from date of original appointment take rank and precedence with lieutenants (junior grade): Provided further, That to determine authorized number officers various grades and ranks line and staff as herein provided, computations shall be made by Secretary of Navy semi-annually, as of July 1 and January 1 of each year, and resulting numbers various grades and ranks, so computed, shall be held and considered for all purposes as authorized number officers such grades and ranks and shall not be varied between such dates.

Total commissioned officers active list following staff corps any one time, exclusive commissioned warrant officers, shall be distributed various grades respective corps as follows:

Medical corps: One-half medical directors rank rear admiral to 4 medical directors rank captain, to 8 medical inspectors rank commander, to 87½ in grades below medical inspector: Provided, That hereafter appointees assistant surgeon shall be between ages 21 and 32 time of appointment.

Pay corps: One-half pay directors rank rear admiral to 4 pay directors rank captain, to 8 pay inspectors rank commander, to 87½ in grades below pay inspector.

Construction corps: One-half naval constructors rank rear admiral to 8½ naval constructors rank captain, to 14 naval constructors rank commander, to 77 naval constructors and assistant naval constructors rank below commander: Provided, That vacancies in construction corps shall be filled in manner now prescribed by law, at such annual rate as Secretary of Navy may prescribe: Provided further, That hereafter ensigns of not less than one year's service as such shall be eligible for transfer to construction corps.

Corps of civil engineers: One-half civil engineers rank rear admiral to 5½ civil engineers rank captain, to 14 civil engineers rank commander, to 80 civil engineers and assistant civil engineers rank below commander.

Hereafter no further appointments shall be made to corps of professors of mathematics, and that corps shall cease to exist upon death, resignation or dismissal of officers now carried in that corps on active and retired lists of navy.

When there is an odd number of officers in grade or rank of rear admiral in line or in each corps, lower division thereof shall include excess in number, except where there is but one.

Whenever a final fraction occurs in computing authorized number any corps, grade or rank naval service, nearest whole number shall be regarded as authorized number: Provided, That at least one officer shall be allowed in each grade or rank.

For purpose of determining authorized number officers in any grade or rank line or staff, there shall be excluded from consideration those officers carried by law as additional numbers, including staff officers heretofore permanently commissioned rank of rear admiral, and nothing contained herein shall be held to reduce below that heretofore authorized by law the number of officers in any grade or rank in staff corps.

Pay and Allowances.—Hereafter pay and allowances officers in upper half grade or rank of rear admiral, including staff corps and including staff officers heretofore permanently commissioned rank of rear admiral, shall be that now allowed by law for first nine rear admirals, and pay and allowances of officers in lower half grade or rank of rear admiral, including staff corps, shall be that now allowed by law for second line rear admirals: Provided, That officers shall take rank in each staff corps according to dates of commission in several grades, excepting in cases where they have gained or lost numbers.

Hereafter chief boatswains, chief gunners, chief machinists, chief carpenters, chief sailmakers, chief pharmacists and chief pay clerks, on active list with creditable records, shall, after six years from date of commission, receive pay and allowances now or hereafter allowed a lieutenant (junior grade), United States Navy: Provided, That chief boatswains, chief gunners, chief machinists, chief carpenters, chief sailmakers, chief pharmacists and chief pay clerks, on active list with creditable records, shall, after 12 years from date of commission, receive pay and allowances now or hereafter allowed a lieutenant, United States Navy.

Warrant officers shall receive same allowances of heat and light as are now or may hereafter be allowed an ensign, United States Navy.

Warrant officers shall be allowed such leave of absence, with full pay, as now or hereafter allowed other officers of navy.

PROMOTION BY SELECTION

Promotions in Command Rank.—Hereafter all promotions to grades of commander, captain and rear admiral of line of navy, including promotion of those captains, commanders and lieutenant commanders who are, or may be, carried on navy list as additional numbers, shall be by selection only from next lower respective grade upon recommendation of board of naval officers as herein provided.

The board shall consist of nine rear admirals on active list of line of navy not restricted by law to performance of shore duty only and shall be appointed by Secretary of Navy and convened during December of each year and as soon after first day of month as practicable.

Each member of said board shall swear, or affirm, that he will, without prejudice or partiality, and having in view solely special fitness of officers and efficiency of naval service, perform duties imposed upon him as herein provided.

The board shall be furnished by Secretary of Navy with number of vacancies in grades of rear admiral, captain and commander, to be filled during following calendar year, including vacancies existing time of convening board and those that will occur by operation of law from date of convening until end of next calendar year, and with names of all officers eligible for consideration for selection as herein authorized together with record of each officer: Provided, That any officer eligible for consideration for selection shall have right to forward through official channels at any time not later than 10 days after convening of board, written communication inviting attention to any matter of record in Navy Department concerning himself which he deems important in consideration of his case: Provided, That such communication shall not contain any reflection upon character, conduct or motives of or criticism of any officer: Provided further, That no captains, commanders or lieutenant commanders, who shall have had not less than four years' service in grade in which he is serving on November 30 of year of convening board, shall be eligible for consideration by board:

Provided further, That recommendation of board in case of officers of former engineer corps restricted by law to performance of shore duty only and in that of officers who may hereafter be assigned to engineering duty only, shall be based upon their comparative fitness for duties prescribed for them by law. Upon promotion they shall be carried as additional numbers in grade.

The board shall recommend for promotion a number of officers in each grade equal to number of vacancies to be filled in next higher grade during following calendar year: Provided, That no officer shall be recommended for promotion unless he shall have received recommendation of not less than six members of said board: Provided further, That increase in number of captains herein authorized shall be made at rate not more than 10 captains any one year.

The report of board shall be in writing signed by all the members and shall certify that board has carefully considered case of every officer eligible for consideration under provisions of this law, and that in opinion of at least six of members, officers therein recommended are best fitted of all those under consideration to assume duties of next higher grade, except that recommendation of board in case of officers former engineer corps restricted by law to shore duty only, and in that of officers who may hereafter be assigned to engineering duty only, shall be based upon their comparative fitness for duties prescribed for them by law.

The report of board shall be submitted to President for approval or disapproval. In case any officer or officers recommended by board are not acceptable to President, board shall be informed of name of such officer or officers, and shall recommend a number of officers equal to number of those found not acceptable to President and if necessary shall be reconvened for this purpose. When report of board shall have been approved by President, officers recommended therein shall be deemed eligible for selection and, if promoted, shall take rank with one another in accordance with their seniority in grade from which promoted: Provided, That any officers so selected shall prior to promotion be subject in all respects to examinations prescribed by law for officers promoted by seniority, and in case of failure to pass required professional examination such officer shall thereafter be ineligible for selection and promotion. And should any such officer fail to pass required physical examination he shall not be considered, in event of retirement, entitled to rank of next higher grade.

Sea Service Required.—On and after June 30, 1920, no captain, commander or lieutenant commander shall be promoted unless he has had not less than two years' actual sea service on sea-going ships in grade in which serving or who is more than 56, 50 or 45 years of age, respectively: Provided, That qualifications of sea service shall not apply to officers restricted to performance of engineering duty only: Provided further, That captains, commanders and lieutenant commanders who become ineligible for promotion on account of age shall be retired on a percentage of pay equal to two and one-half per centum of their shore-duty pay for each year of service: Provided further, That total retired pay shall not exceed 75 per centum of shore-duty pay they were entitled to receive while on active list.

Retirement at 64 Years.—Except as herein otherwise provided, hereafter age for retirement of all officers of navy shall be 64 years instead of 62 years as now prescribed by law.

Nothing contained in this act shall be construed to reduce rank, pay or allowances of any officer of navy or marine corps as now provided by law.

OFFICERS FOR ENGINEERING DUTY

Officers for Engineering Duty only.—Officers of line of navy not below grade of lieutenant may, upon application, and with approval of Secretary of Navy, be assigned to engineering duty only, and when so assigned and until they reach grade of commander, shall perform duty prescribed in

Sec. 4, Personnel Act of March 3, 1899, and thereafter shore duty only as now prescribed for officers transferred to line from former engineer corps, except that commanders may be assigned to duty as fleet and squadron engineers. When so assigned they shall retain place with respect to other line officers in grades they now or may hereafter occupy, and also right to succession to command on shore in accordance with their seniority, and shall be promoted as vacancies occur subject to physical examination and examination in engineering as Secretary of Navy may prescribe. Number officers so assigned in any one year shall be in accordance with requirements of service as determined by Secretary of Navy. Secretary of Navy is authorized to appoint annually in line of navy for period of 10 years following passage of this act, in order of merit determined by examination, 30 acting ensigns for performance of engineering duties only. Persons so appointed must have received a degree of mechanical or electrical engineer from college or university of high standing or be graduates of technical schools approved by Secretary of Navy, must have been found physically qualified, and must at time of appointment be not less than 20 nor more than 26 years of age. Such appointments shall be for a probationary period of three years, revocable at any time by Secretary of Navy.

Such acting ensigns shall, upon completion probationary period—two years on board cruising vessels, one year pursuing instruction at Naval Academy prescribed by Secretary of Navy—be commissioned lieutenant, junior grade, after passing examination prescribed by Secretary of Navy, and recommended by examining board and found physically qualified.

Such officers shall thereafter be required to perform engineering duties only, and shall be eligible for advancement to the higher grades in the manner herein provided for line officers assigned to engineering duty only.

Absence from Duty.—Hereafter no officer or enlisted man, navy or marine corps, in active service, absent from duty account sickness or disease resulting own intemperate use drugs or alcoholic liquors, or other misconduct, shall receive pay for period such absence, time so absent and cause to be ascertained under regulations to be prescribed by Secretary of Navy. An enlistment shall not be regarded as complete until enlisted man shall have made good any time excess of one day lost account of sickness or disease resulting own intemperate use drugs or alcoholic liquors, or other misconduct.

Furloughs Without Pay.—Secretary of Navy is authorized to grant furlough without pay to enlisted men for period covering unexpired portion of enlistment, such furlough to be granted under same conditions and in lieu of discharge by purchase or by special order of department. Enlisted men so furloughed shall be subject to recall in time of war or national emergency to complete unexpired portion of enlistment, and shall be in addition to authorized number enlisted men of navy.

Increase of Surgeons.—Hereafter authorized number of surgeons in navy is increased by one; hereafter Secretary of Navy is authorized to detail one or more officers of medical corps of navy for duty with military relief division of American National Red Cross.

Active Pay According to Rank and Length of Service.—Hereafter all commissioned officers of active list of navy shall receive same pay and allowances according to rank and length of service: Provided, That this provision shall not be construed to reduce pay and allowances of commissioned warrant officers as herein authorized.

RETIRED OFFICERS

Pay of Retired Officer on Active Detail.—No officer who, after having commanded a fleet in active commission, has been retired for age and whom, in judgment of Secretary of Navy, public interests make it necessary to retain for a time after said retirement and who is performing active duty as chairman of executive committee of General Board, shall, for the period so retained, suffer any reduction in emoluments he was receiving

at time of his retirement. Hereafter any retired officer of naval service who shall be detailed on active duty shall, while so serving, receive active duty pay and allowances for grade, not above that of lieutenant commander in navy or of major in marine corps, that he would have attained in due course of promotion if he had remained on active list for a period beyond date of his retirement equal to total amount of time during which he has been detailed on active duty since his retirement: Provided, That nothing herein shall be construed to reduce pay of any retired officer on active duty whose retired pay exceeds active duty pay and allowances for grade of lieutenant commander.

THE NAVAL FLYING CORPS

The naval flying corps shall be composed of 150 officers and 350 enlisted men detailed, appointed, commissioned, enlisted, and distributed in various grades, ranks, and ratings of navy and marine corps as hereafter provided. Number of officers, student flyers, and enlisted men shall be in addition to total number officers and enlisted men now or hereafter provided by law for other branches of naval service.

Number officers detailed to duty involving actual flying in any one year shall be in accordance requirements of air service as determined by Secretary of Navy. Officers so detailed from line of navy and from marine corps shall not exceed total herein prescribed for naval flying corps. Proportion line officers of navy and marine corps thus detailed shall be same as proportion established for regular services. Student flyers hereinafter provided for shall be in addition to officers and enlisted men comprising naval flying corps.

Officers detailed and enlisted men of naval flying corps shall receive same pay and allowances now provided by law for officers and enlisted men of same grade or rank and rating in navy and marine corps detailed to duty with aircraft involving actual flying.

Acting Appointments.—Secretary of Navy, is authorized to appoint annually in line of navy and marine corps for two years following passage of this act, in order of merit as determined by competitive examinations, 15 acting ensigns or acting second lieutenants for performance of aeronautic duties only. Persons so appointed must be citizens, and may be appointed from warrant officers or enlisted men of navy or from civil life, and must, at time of appointment, be not less than 18 or more than 24 years of age, physically qualified. Number of such appointments to line of navy and of marine corps shall be in proportion decided for regular services. Such appointments shall be for a probationary period of three years and may be revoked by Secretary of Navy. Such acting ensigns and acting second lieutenants shall be detailed to duty involving actual flying.

Such acting ensigns and acting second lieutenants shall, upon completion of probationary three years, be appointed acting lieutenant, junior grade, or acting first lieutenants, respectively, for aeronautic duties only, after passing examinations, and recommended by the examining board and physically qualified. Such appointments shall be for a probationary period of four years, revocable by Secretary of Navy.

Such acting officers may elect to qualify for aeronautic duty only or to qualify for all duties of officers of same grade in navy and marine corps, respectively. Those who elect to qualify for aeronautic duty only shall be detailed to duty in flying corps involving actual flying. Those who elect for regular duties of grade shall be detailed duty regular service for at least two years to prepare for such qualification.

Such acting officers who have elected for aeronautic duty only shall, upon completion of probationary four years, be commissioned lieutenant of line of navy or captain of marine corps for aeronautic duties only, after passing competitive examination to determine qualifications and order of rank. Such lieutenants for aeronautic duty only shall be extra numbers, with and next after officers of same date of commission.

Such acting officers who have elected to qualify for regular duties, line of navy and of marine corps, respectively, shall, upon completion probationary four years—two years of which on regular duties—be commissioned in grade lieutenant of line of navy and captain of marine corps, after passing examinations for such commissions and to determine order of rank. Such officers will be borne as extra numbers, with and next after officers of regular services of same date of commissions.

Acting lieutenants (junior grade) line of navy for aeronautic duties only and acting first lieutenants, marine corps, aeronautic duty only who have completed probationary four years may, upon examination for commissions to next higher grade, if recommended by board of examination, be transferred to naval reserve flying corps and commissioned in same grade or next higher grade as may be recommended. At any time during probationary period any such officer can, upon own request, if record warrants it, be transferred to naval reserve flying corps and commissioned in acting grade he then holds. Any officer of flying corps holding appointment student flyer or acting ensign, second lieutenant, lieutenant (junior grade), or first lieutenant, who, upon examination for promotion, is found not qualified shall, if not recommended for transfer to naval reserve flying corps, be honorably discharged.

Officers commissioned for aeronautic duty only shall be eligible for advancement to grades not above captain in navy or colonel in marine corps, in same manner as other officers whose employment is not so restricted, except that they shall be eligible to promotion without restriction as to sea duty, and their professional examinations shall be restricted to duty to which personally assigned. Any such officer must serve at least three years in grade before eligible to promotion, next higher grade.

Student Flyers.—Nothing in this act shall be construed to prevent detail of officers and enlisted men of other branches of navy as student aviators or student airmen in such numbers as needs of service may require.

Student aviators and student airmen on duty involving actually flying, shall receive same pay and allowances now provided for officers and men same grade or rank and rating in navy detailed duty aircraft.

Secretary of Navy is authorized to appoint annually for four years, from enlisted men of navy service, or from civil life, not to exceed 30 student flyers for instruction and training in aeronautics who shall receive pay and allowances of midshipmen. Persons so appointed must at time of appointment be not less than 17 or more than 21 years of age. No person shall be appointed student flyer until qualified by examination.

Appointment of student flyers shall continue in force two years, unless sooner revoked by Secretary of Navy, and at end of period student flyers shall be examined for qualifications as qualified aviators. If not qualified, appointment will be revoked, or, if recommended by examining board, they shall be transferred to naval reserve flying corps and commissioned as ensigns therein.

Student flyers shall, after receiving certificate of qualification as aviator for actual flying, rank with midshipmen and shall receive pay and allowances of midshipmen, plus 50 per centum thereof. Student flyers qualified as aviators under this act shall be commissioned acting ensigns for aeronautic duties only, after three years' service, after passing competitive examination. Any student flyer qualified as an aviator may at any time, in discretion of Secretary of Navy, if record warrants it, at own request, be transferred to naval reserve flying corps and be commissioned ensign therein. Student flyers not considered qualified for commissions as acting ensigns for aeronautic duties only may, upon recommendation of board, be transferred to naval reserve flying corps and be commissioned as ensigns therein.

Secretary of Navy is authorized to establish aeronautic schools for student flyers and prescribe course of instruction and qualifications for certificate of graduation.

Nothing in this or any other act shall be so construed as to prevent temporary detail officers and enlisted men any branch of navy for duty with aircraft.

Death Gratuity and Pensions.—In event of death of an officer or enlisted man or student flyer of naval flying corps from wounds or disease, result of aviation accident, not result of own misconduct, received while engaged in actual flying in or in handling aircraft, gratuity to be paid under Naval Appropriation Act of August 22, 1912, shall be an amount equal to one year's pay at rate received by such officer or enlisted man or student flyer at time of accident resulting in his death. Pensions for disability or death resulting from injury or disease, result of aviation accident, received in actual flying in or in handling aircraft, shall be double amounts authorized in cases not the result of aviation accident.

Student flyers and acting officers provided for herein shall be subject to laws and regulations of navy, but shall not be entitled to retirement or retired pay.

Enlisted Personnel in Flying Corps.—Enlisted personnel naval flying corps shall be distributed by Secretary of Navy in various ratings as now obtain in navy in so far as such ratings are applicable to duties connected with aircraft.

Within first two years after approval of this act enlisted men may be transferred from other branches naval service to flying corps, under regulations established by Secretary of Navy. Number so transferred shall not exceed one-half total number enlisted men allowed by this act.

The Secretary of Navy shall establish regulations governing terms of enlistment, qualifications, and advancement of enlisted men of flying corps.

Any enlisted man who passes satisfactorily prescribed examination and is recommended by board of officers may be appointed student flyer as herein provided.

ADMINISTRATION OF JUSTICE

Hereafter all officers, navy and marine corps, authorized to order general or summary courts-martial may order deck courts upon enlisted men under their command, and shall have same authority to inflict minor punishments as conferred by law upon commander of naval vessel.

Summary courts may be ordered upon enlisted men in naval service under his command by commanding officer of any brigade, regiment, or separate or detachment battalion, or other separate or detached command, and, when empowered by Secretary of Navy, by commanding officer or officer in charge any command not specifically mentioned in foregoing: Provided, That when so empowered by Secretary of Navy to order summary courts, the commanding officer of a naval hospital or hospital ship shall be empowered to order such courts and deck courts, and inflict punishments commander of naval vessel is authorized by law to inflict, upon all enlisted men of naval service attached thereto, whether for duty or as patients.

No sentence of a summary court shall be carried into execution until proceedings and sentence have been approved by officer ordering court, or his successor in office, and by his immediate superior in command. If officer ordering court, or his successor in office, be senior officer present, such sentence may be carried into execution upon his approval.

When empowered by Secretary, general courts may be convened by commanding officer of a squadron, division, of a flotilla or of a larger naval force afloat, and of a brigade or larger force of naval service on shore beyond continental limits of the United States. In time of war, if then so empowered by Secretary of Navy, general courts may be convened by commandant of any navy yard or naval station, and by commanding officer, brigade or larger force, navy or marine corps, on shore not attached to navy yard or station.

Courts of inquiry may be convened by any officer of naval service authorized by law to convene general courts.

When a force of marines is embarked on a naval vessel, or vessels, as a separate organization, not part of the authorized complement thereof, authority and powers of officers of such separate organization of marines shall be same as though such organization were serving at navy yard on shore, but nothing herein shall be construed as impairing paramount authority of commanding officer of any naval vessel over vessel under his command and all persons embarked thereon.

NAVAL RESERVE FORCE

The provisions of the bill relating to the reserve force are substantially the same as published in the July-August number of the PROCEEDINGS.

NAVAL MILITIA AND NATIONAL NAVAL VOLUNTEERS

Each commissioned and warrant officer on active list of naval militia shall receive as retainer pay, except during periods of service for which he may become lawfully entitled to same pay as an officer of corresponding grade of the United States Navy or Marine Corps, at following rates per annum, namely: To officers of or above naval rank or equivalent rank of lieutenant, $500; to officers of naval rank or equivalent rank of lieutenant (junior grade), $240; to officers of naval rank or equivalent rank of ensign, $200; to warrant officers, $120: Provided, That no commissioned or warrant officer of the naval militia shall be entitled to any retainer pay for any period during which he has not attended the minimum number of drills prescribed in Sec. 15 of an act entitled, "An act to promote the efficiency of the naval militia, and for other purposes," approved February 16, 1914, or duly authorized equivalent official duty.

Each enlisted man on active list of naval militia shall receive as retainer pay, except during periods of service for which he may become lawfully entitled to same pay as an enlisted man of corresponding rate or rank of navy or marine corps, at a rate equal to 25 per centum of base pay now or hereafter provided by law for an enlisted man of corresponding rate or rank in navy or marine corps, but not to exceed $120 per annum: Provided, That such enlisted man shall receive full 25 per centum of said base pay only if he shall have attended, during any one year, the maximum number of assemblies for drill, instruction and target practice, but for purpose of computing pay not to exceed 48 (or equivalent official duty), which he shall have been duly required to attend, and a proportionate amount for attendance at a lesser number of the same, being in no case less than 50 per centum of said maximum, nor less than the minimum total number of assemblies for drill, instruction and target practice provided for by Sec. 15 of an act to promote the efficiency of the naval militia, and for other purposes, approved February 16, 1914, or equivalent official duty duly authorized in lieu thereof.

Whenever a member of the naval militia who is employed under a department of the government of United States attends drills, cruises, or other ordered duty of naval militia, he shall receive amount of salary or wages he would have earned when so employed, in addition to amount provided for by law as member of said naval militia. Provided, however, That such attendance shall not affect his efficiency rating in said department, nor shall he suffer demotion or loss of position during or at termination of any naval or military service when ordered upon special or active duty of any kind.

Officers and enlisted men of naval militia to whom property has been issued as herein provided for shall be responsible for safekeeping and return thereof. Stoppages may be made against compensation payable to any officer or enlisted man of naval militia to cover cost of public property lost or destroyed by and chargeable to such officer or enlisted man.

No part of the naval militia which is entitled to compensation under the provisions of this act shall be disbanded without the consent of the President.

To provide a force for use in any emergency requiring use of naval forces in addition to those of regular navy, of which emergency the President shall be sole judge, there is created a force, to be known as the "National Naval Volunteers," into which the President alone is authorized, under such regulations as he may prescribe, to at any time enroll, by commission, warrant, and enlistment, respectively, and without examination, such number of the officers and men of various branches of naval militia as he may decide to so enroll from among those of naval militia who have theretofore conformed to the standard of professional and physical examination prescribed for such officers and men; and may also similarly enroll such further number of officers and men of the naval militia as may so volunteer from among those of the naval militia who have not theretofore conformed to said standards. Such officers and men, so enrolled by commission, warrant, or enlistment, shall be eligible and liable for call for immediate service in the event of any such emergency.

The President may also, in event of emergency, draft into naval service and enroll as members of said volunteers as many officers and men of naval militia as he may think best, and with or without examination from among those of naval militia who shall not therefore have volunteered and been enrolled in said volunteers: Provided, That no commissioned or warrant officer drafted or otherwise enrolled shall be compelled to serve in said volunteers in a lower rank or grade than that which he held in naval militia at time of being drafted or otherwise enrolled. The President may commission, warrant, or rate in said volunteers any person who shall be so enrolled as above.

All persons so enrolled shall be held to service in said volunteers during continuance of any such emergency and during period of any existing or thereafter ensuing war, unless sooner relieved by order of President or until reaching age of 62 years for those in naval branch and of 64 years for those in marine corps branch. During continuance of any such emergency or war any enrolled person who shall fail to obey call to service of President may be arrested and compelled to serve, and, in addition thereto, may be tried by court-martial as a deserter and punished as such in such manner as said court-martial may lawfully direct.

Any person so enrolled may tender his resignation to, or request his discharge from, the President, who may accept such resignation or grant such discharge and disenroll such person, and any person so enrolled may be disenrolled by the President for any cause: Provided, That no person so enrolled shall be held against his will to such enrollment for a longer continuous period than three years, except during pendency or duration of emergency or of war hereinabove referred to.

Every person enrolled in said volunteers shall, from date of call of President, and during continuauce of active service under said call, stand relieved from all duty as a member of naval militia, and shall, during said period, have in said volunteers all authority and obligations of a person of similar rank, grade, or rate in navy or marine corps, shall be governed by the laws and regulations of navy, and shall be entitled to pay and allowances provided for similar rank, grade, or rate in navy and marine corps, respectively.

Members of said volunteers may be ordered to duty with navy or separately, and either within or without territorial limits of United States, and when so serving shall rank with but after those of corresponding rank, grades, or rates in navy or marine corps, except that for purpose of determining who shall exercise command over a combined force, composed of vessels commanded by officers of said volunteers, and of vessels commanded by officers of navy, acting in conjunction, and for purpose of determining who shall exercise command on shore over a combined force composed of military units commanded by officers of volunteers and officers of navy or marine corps, acting in conjunction, all officers of said volunteers of or above rank of lieutenant commander (naval branch) or major (marine

corps branch) will be regarded as junior to lieutenant commanders of navy and majors of marine corps, respectively, and provided that as between themselves officers of volunteers shall take rank and precedence as of dates of commissions in naval militia under which enrolled in volunteers.

Pension and death gratuity provisions and promotions or rewards for valorous conduct provided for the navy are alike extended to the naval volunteers.

The President may relieve any and all persons in national naval volunteers from active service when their services are no longer needed.

The naval militia shall consist of the regularly enlisted militia between ages 18 and 45, organized as prescribed for naval militia by law, and commissioned officers between 21 and 62 years (naval branch), and 21 and 64 years (marine corps branch): Provided, however, That enlisted men may continue in service after age of 45 years, and until age of 62 years (naval branch), or 64 years' (marine corps branch), provided service is continuous.

Hereafter enlistment in naval militia shall be three years. An enlisted man who has served honorably full term of enlistments may re-enlist for one, two, or three years, as he may elect. When a man re-enlists within 30 days from expiration of prior enlistment his term of service shall be considered as continuous, and shall be so dated.

Officers of navy and marine corps, may, with approval of Secretary of Navy, be elected or appointed and commissioned as officers of naval militia without prejudice to position or status in regular service: Provided, That such officers so commissioned shall, when directed by Secretary of Navy, tender their resignations of such state commissions: And provided further, That nothing herein contained shall limit authority of Secretary of Navy over such officers so commissioned.

Line officers of naval militia may be for line duties only, for engineering duties only, or for aeronautic duties only.

Under such regulations as President may prescribe, Secretary of Navy may, upon the recommendation of governor of any state or territory, or commanding general, national guard, District of Columbia, authorize limited number of selected officers or enlisted men of naval militia to attend and pursue a regular course of study at any navy or marine corps service school of United States, except Naval Academy; or to be attached to any navy or marine corps command for routine practical instruction; to receive travel allowances and quarters, or commutation of quarters, and same pay, allowances, and subsistence to which an officer or enlisted man of naval service would be entitled for attending; in no case shall the pay and allowances authorized by this section exceed those of a lieutenant in navy.

Volunteer Patrol Squadrons.—The Secretary of Navy is authorized to sell at cost and issue lubricating oil and gasoline to vessels of volunteer patrol squadrons duly enrolled in the several naval districts; and during maneuvers or practice drills when any vessels of said patrol boat squadrons shall be acting singly or as squadrons under direct command or control of an officer or officers of navy, gasoline fuel shall be supplied free of charge.

COAST GUARD

Whenever, in time of war, coast guard operates as part of navy in accordance with law, personnel of that service shall be subject to laws prescribed for navy: Provided, That in initiation, prosecution, and completion of disciplinary action, including remission and mitigation of punishments for any offence committed by any officer or enlisted man of the coast guard, jurisdiction shall hereafter depend upon and be in accordance with laws and regulations of department having jurisdiction of person of such offender at various stages of such action: Provided further, That any punishment imposed and executed in accordance with provisions of this section shall not exceed that to which offender was liable at time of commission of offence.

Hereafter whenever, in accordance with law, expenses of coast guard are paid by Navy Department, any naval appropriations from which payments are so made shall be reimbursed from available appropriations made by Congress for expenses of coast guard.

Whenever personnel of coast guard, or any part thereof, is operating with personnel of navy in accordance with law, precedence between commissioned officers of corresponding grades in the two services shall be determined by date of commissions in those grades.

Any commissioned or warrant officer, petty officer, or other enlisted man in coast guard may be assigned to any duty which may be necessary for proper conduct of coast guard; and Secretary of Treasury in time of peace and Secretary of Navy in time of war may, in discretion, man any coast guard station during entire year, or any portion thereof, maintain any house of refuge as a coast guard station, and change, establish and fix limits of coast guard districts and divisions.

Aeronautics, Coast Guard.—For purpose of saving life and property along coasts of United States and at sea contiguous thereto, and to assist in national defence, Secretary of Treasury is authorized to establish, equip and maintain 10 aviation stations, at such points on Atlantic and Pacific coasts, Gulf of Mexico, and Great Lakes as he may deem advisable, and to detail for aviation duty in connection therewith officers and enlisted men of United States Coast Guard. At one of these stations there may be instituted a school for special instruction in aeronautics, and Secretary of Treasury is authorized to employ one expert instructor in aeronautics, at $4000 per annum, and one assistant instructor, at $3000.

At request of Secretary of Treasury, Secretaries of War and Navy are authorized to receive officers and enlisted men of coast guard for instruction in aviation at any aviation school maintained by army and navy, and such officers and enlisted men shall be subject to regulations governing such schools.

Hereafter officers and enlisted men of coast guard, when detailed for aviation duty, shall receive same percentages of increases in pay and allowances as prescribed for officers and men of navy detailed for aviation duty: Provided, That no more than a yearly average of 15 commissioned officers and a total of 40 warrant officers and enlisted men of the coast guard detailed for duty involving actual flying in aircraft shall receive any increase in pay or allowances by reason of such detail or duty.

The number of third lieutenants and third lieutenants of engineers now authorized by law for coast guard is hereby increased ten and five, respectively, and such portion of act of August 24, 1912, which provides that no additional appointments as cadets or cadet engineers shall be made in revenue cutter service unless hereafter authorized by Congress is hereby revoked.

LIGHTHOUSE SERVICE

The President is authorized, whenever in his judgment a sufficient national emergency exists, to transfer to service and jurisdiction of Navy Department, or of War Department, vessels, equipment, stations, and personnel of lighthouse service, such vessels, equipment, stations, and personnel to be returned to lighthouse service when such national emergency ceases in opinion of President, and nothing in this act shall be construed as transferring lighthouse service or any of its functions from Department of Commerce except in time of national emergency and to extent herein provided. Any of personnel of lighthouse service who may be transferred as herein provided shall, while under jurisdiction of Navy Department or War Department, be subject to laws, regulations, and orders for government of navy or army, as case may be, in so far as same may be applicable to persons whose retention permanently in military service of United States is not contemplated by law.

The Secretary of Navy, Secretary of War and Secretary of Commerce shall jointly prescribe regulations governing duties to be performed by light-house service in time of war, and for cooperation of that service with Navy and War Departments in time of peace in preparation for its duties in war, and this may include arrangements for direct line of communication between officers or bureaus of Navy and War Departments and Bureau of Light-houses to provide for immediate action on all communications from these departments.

Preferential Shipment of War Supplies.—Sec. 6 of act of February 4, 1887, as amended March 2, 1889, and June 29, 1906, is amended to read: "That in time of war or threatened war preference and precedence shall, upon demand of President of United States, be given over all other traffic for transportation of troops and material of war, and carriers shall adopt every means within their control to facilitate and expedite military traffic. And in time of peace shipments consigned to agents of United States for its use shall be delivered by carriers as promptly as possible and without regard to any embargo that may have been declared, and no such embargo shall apply to shipments so consigned."

Land for Radio Stations.—Such land of United States under control of a particular department or other branch of government that has been or may hereafter be mutually selected as a site for a naval radio station may, by direction of President, be transferred to and placed under control and jurisdiction of Navy Department for use as a naval radio station or other naval purposes.

More Instructors at Navl Academy.—The Secretary of Navy is authorized to employ at Naval Academy such number of professors and instructors, including one professor as librarian, as, in his opinion, may be necessary for proper instruction of midshipmen; professors and instructors so employed shall receive such compensation for their services as may be prescribed by Secretary of Navy. The total amount so paid shall not exceed $175,000 annually. The Secretary of Navy shall report to Congress each year number of professors and instructors so employed and amount of compensation prescribed for each. No part of any sum in this act appropriated shall be expended in pay or allowances of any commissioned officer of navy detailed for duty as an instructor at Naval Academy to perform duties which were performed by civilian instructors on January 1, 1913.

MARINE CORPS PERSONNEL

Hereafter total number commissioned officers of active list of line and staff, marine corps, exclusive of officers borne as additional numbers, shall be four per centum of total authorized enlisted strength of active list, marine corps, exclusive of marine band, and of men under sentence of discharge by court-martial, distributed in proportion of one officer with rank senior to colonel to four with rank of colonel, to five lieutenant colonels, to 14 majors, to 37 captains, to 31 first lieutenants, to 31 second lieutenants: Provided further, That brigadier generals shall be appointed from officers of marine corps senior in rank to lieutenant colonel: Provided further, That promotion to grade of brigadier general of any officer now or hereafter carried as an additional number in grade or with rank of colonel shall be held to fill a vacancy in grade of brigadier general: Provided further, That in determining officers with rank senior to colonel there shall be included the officer serving as major general commandant: And provided further, That appointments hereafter made to position of major general commandant under provisions of act of December 19, 1913, shall be made from officers of active list of marine corps not below rank of colonel: Provided further, That officers serving in senior grade of Adjutant and Inspector's, Quartermaster's and Paymaster's Departments shall, while serving therein, have rank, pay and allowances of brigadier general: And provided further, That for purpose of determining number of officers in

various ranks as herein provided such staff officers shall be counted as being of rank of colonel: And provided further, That officers holding permanent appointments in staff departments shall not be eligible for appointment to grade of brigadier general of line as hereinbefore provided.

The total commissioned personnel of active list of staff departments, whether serving therein under permanent appointments or under temporary detail, as herein provided, shall be 8 per centum of authorized commissioned strength of marine corps, and of this total one-fifth shall constitute Adjutant and Inspector's Department, one-fifth Paymaster's Department, and three-fifths Quartermaster's Department.

No further permanent appointments shall be made in any grade in any staff department. Any vacancy hereafter occurring in lower grade of any staff department shall be filled by detail of an officer of line for a period of four years unless sooner relieved; any vacancy hereafter occurring in upper grade of any staff departments shall be filled by appointment of an officer with rank of colonel holding permanent appointment in staff department in which vacancy exists, or of some other officer holding permanent appointment in such staff department in case there be no permanent staff officer with rank of colonel in that department, or of a colonel of line in case there be no officer holding permanent appointment in such staff department. Such appointments shall be made by President and be for four years, and officer so appointed shall be recommissioned in grade to which appointed.

That prior to June 30, 1918, an officer holding permanent appointment in any staff department may, upon own application, with approval of President, be reappointed in line of marine corps in grade and with rank he would hold on date of his reappointment if he had remained continuously in line: Provided, That no officer holding permanent appointment in any staff department shall be recommissioned in line with rank of colonel or lieutenant colonel: Provided further, That such staff officer shall, before being reappointed in line of marine corps as above provided, perform line duties for one year, at expiration of which time he shall as a prerequisite to reappointment in line be required to establish to satisfaction of an examining board consisting of line officers of marine corps his physical, mental and professional fitness for performance of line duty.

That for purpose of advancement in rank to and including grade of colonel, all commissioned officers of line and staff of marine corps shall be placed on common list in order of seniority each would hold had he remained continuously in line. All advancements in rank of captain, major, lieutenant colonel and colonel shall, subject to usual examinations, be made from officers with next junior respective rank, whether of line or staff, in the order in which their names appear on said list.

Civil Life Appointees.—Appointees to grade of second lieutenant, if appointed from civil life, shall be between ages of 20 and 25 years, and before receiving commission in marine corps each appointee shall establish qualifications for such commission.

The President is authorized, by and with advice and consent of Senate, to appoint as second lieutenants on active list in United States Marine Corps, to the rank at foot of list of second lieutenants as it stands at date of reinstatement, former officers of marine corps who resigned from naval service in good standing: Provided, That they shall establish their moral, physical, mental and professional qualifications to perform the duties of that grade: Provided further, That Secretary of Navy may waive age limit in favor of aforesaid former officers of marine corps: Provided further, That prior service of such officers and service after reinstatement shall be not less than 30 years before age of retirement.

Appointments from non-commissioned officers of the marine corps and from civil life shall be for a probationary period of two years, revocable by Secretary of Navy: Provided further, That rank of such officers of same date of appointment among themselves at end of probation shall, with

approval of Secretary of Navy, be determined by competitive examination, rank to be of date of original appointment with reference to other appointments to marine corps.

No midshipman at Naval Academy or cadet at Military Academy who fails to graduate therefrom shall be eligible for appointment as a commissioned officer in marine corps until after graduation of class of which he was a member.

Warrant Grades in Marine Corps.—That warrant grades of marine gunner and quartermaster clerk are hereby established, and appointment as herein prescribed of 20 marine gunners and 20 quartermaster clerks is authorized. Officers in those grades shall have rank and receive pay, allowances and privileges of retirement of warrant officers in navy. They shall be appointed from non-commissioned officers of marine corps and clerks to quartermasters now serving as such and who have performed field service.

Officers of marine corps with rank of colonel who shall have served faithfully for 45 years on active list shall, when retired, have rank of brigadier general; and such officers hereafter retired at 64 years before having served 45 years, but who shall have served faithfully on active list until retired, shall, on completion of 40 years from entry in naval service, have rank of brigadier general.

The President is authorized, within two years after approval of this act, by and with advice and consent of Senate to transfer to active list of marine corps or navy pay corps any officer under 50 years of age who may have been transferred from active list to retired list of marine corps or navy pay corps by action of any retiring board for physical disability incurred in line of duty: Provided, That such officer shall be transferred to place on active list which would have had if he had not been retired, and shall be carried as an additional number in grade to which transferred or at any time thereafter promoted: Provided further, That such officer shall establish mental, moral, professional, and physical qualifications to perform duties on active list of grade to which transferred. Provisions of Secs. 1493 and 1494, Rev. Stat. United States, shall apply to marine corps.

In lieu of suspension from promotion of any officer of marine corps who hereafter fails to pass satisfactory professional examination for promotion, or who is now under suspension from promotion by reason of such failure, such officer shall suffer loss of numbers, upon approval of recommendation of examining board in respective ranks, as follows: Lieutenant colonel, 1; major, 2; captain, 3; first lieutenant, 5; second lieutenant, 8: Provided, That any such officer shall be re-examined as soon as expedient after expiration of six months if in meantime again due for promotion, and if not in meantime again due for promotion he shall be re-examined at such time anterior to again becoming due for promotion as may be for best interests of service: Provided further, That if any such officer fails to pass satisfactory professional re-examination he shall be honorably discharged with one year's pay from marine corps.

Camps of Instruction.—Secretary of Navy is authorized to establish and maintain marine corps training camps for instruction of citizens who make application and are designated for such training; no such camps to be in existence longer than six weeks in each fiscal year, except in time of actual or threatened war; to use marine corps and such other government property for military training of such citizens at such camps. The Quartermaster's Department, United States Marine Corps, is authorized to sell prescribed articles of uniform clothing at cost to volunteer citizens designated to participate in these instructions. These citizens shall be required to furnish at own expense transportation and subsistence to and from camps, and subsistence while undergoing training therein; $31,000 is appropriated.—*Army and Navy Journal*, 10/8.

ESTIMATED STRENGTH OF THE NAVY.—The following table is taken from the *New York Herald*. It illustrates how the Navy General Board's idea

of second-place requirements compares with the three-year program adopted by Congress:

Classes of Ships	Present Second Power			United States			Additional No. Needed by U. S.	Three-Year Prog.
	Built	Building	Total	Built	Building	Total		
Dreadnoughts.....	20	2	22	9	8	17	6	10
Pre-Dreadnoughts..	20	0	20	22	0	22	0	0
Coast Defence	0	0	0	4	0	4	0	0
Battle Cruisers	6	3	9	0	0	0	10	6
Armored Cruisers..	3	0	3	10	0	10	0	0
Cruisers (Scouts)..	32	2	34	14	0	14	21	10
Destroyers.....	145	0	145	53	17	70	80	58
Torpedo Boats.....	0	0	0	2	0	2	0	0
Submarines, Fleet..	..	?	?	0	3	3	9	9
Submarines, Coast..	32	?	?	39	33	72	78	58
Aircraft.....							*$3,500,000	

Total personnel needed when the United States becomes second in naval strength, 8265 officers and 127,793 enlisted men. Bill provides total of 3000 officers and 75,000 enlisted men.

*General Board recommended $7,000,000.

ELECTRIC PROPULSION FOR "CALIFORNIA" AND "TENNESSEE."—The specifications for these vessels provide for propulsion by electric motors. The power plant of each is to consist of two turbo-alternators and four induction motors, arranged so that all four motors operate in parallel on one alternator at slow speeds. At higher powers each alternator feeds two motors. The motors are phase wound and are provided with variable rotor resistance, which may be short circuited to permit the motors to operate as squirrel cage machines when running steadily, the general arrangement being somewhat like that of the *Jupiter*. Pole changing switches are provided so that at normal full speed the motors are 24 pole, and at normal slow speed 36 pole. Minor changes in speed are effected by changing the setting of the main turbine governors. The power plant is rated at 32,000 horse-power. Six 300 KW. generators are provided for ship service. These are located in the engine rooms and are of the 3-wire type with balance coils, supplying current at 240 volts for motors and 120 volts for lamps.—*R. S. E.*

GEARED TURBINES FOR DESTROYERS.—It has recently been announced that the Navy Department intends to re-engine ships in the service that are now equipped with direct connected turbines. The first two to be so reconstructed will be the destroyers *Henley* and *Mayrant*. These are to be equipped with geared turbine units, for which contracts have been placed with the Westinghouse Machine Company, of East Pittsburgh, Pa.

Geared turbines have been decided upon due to the fact that they are lighter and take up less space than direct connected units, are much better mechanically because of their small size, and materially reduce steam consumption at all speeds and especially at cruising speeds. This reduces the fuel consumption and increases the steaming radius, which is an important feature.

The *Henley* was built by the Fore River Shipbuilding Company, of Quincy, Mass., and completed in the fall of 1912. The main machinery consisted of two direct connected marine turbines with two compound cruising engines which were connected to the main turbine shafting by means of jaw clutches. The turbines had 14 ahead and two reserve stages. Steam was supplied to the turbines at a pressure of 250 pounds, by water tube

boilers for which oil was used as fuel. The machinery to be supplied by the Westinghouse Machine Company will consist of two complete expansion geared turbine units of the impulse reaction type with Kingsbury thrust bearings, and two geared cruising units. It is to be installed in the same engine room space and to connect with the existing propeller shafting, and drive the propellers at the same speed as formerly. The two main turbines will each have a capacity sufficient to move the ship at a speed of 15 knots per hour. They will be connected to the main turbines by clutches and will be used only up to a speed of 15 knots. After this speed has been attained they will be disconnected and the main turbine alone used. Reduction gears will reduce the turbine speed of 3000 revolutions per minute down to 640 revolutions per minute for the propeller shaft.

The *Mayrant* was built by the Wm. Cramp & Sons Ship & Engine Building Company, of Philadelphia, Pa., and was delivered to the government in 1911. The machinery consisted of two turbines without cruising engines. The turbines were designed to develop 13,000 shaft horse-power at a speed of 650 revolutions per minute and with a steam pressure of 250 pounds gauge. They had 16 stages ahead and seven stages astern. Steam was supplied by four water tube boilers. Oil was used for fuel, as in the *Henley*. The new machinery to be furnished will be essentially the same as that for the *Henley*. The main turbines, however, will each have a capacity of 7000 shaft horse-power at a speed of 629 revolutions per minute. The revolutions per minute of the turbines will be 3000.—*Army and Navy Register*, 26/8.

NAVAL BASE IN NICARAGUA.—San Diego, Cal., August 22. That the Navy Department is now considering the establishment of a naval base in the Gulf of Fonseca, under the terms of the treaty ratified by the United States and Nicaragua last year, was announced by Admiral Caperton, commander-in-chief of the Pacific fleet, who arrived here to-day aboard the flagship *San Diego* from Maatlan, Mex.

The naval base, it was said, would be situated on one of two islands within easy steaming distance of Corinto, the principal seaport of Nicaragua. The *San Diego*, with Admiral Caperton aboard, will proceed to the Gulf of Fonseca to make a survey of the islands about September 7.

On the *San Diego's* late cruise in southern waters, Admiral Caperton visited the principal ports on the Mexico west coast. He reported quiet conditions prevailing in every city. He said that the ships now on southern patrol would be withdrawn in rotation to-morrow.—*N. Y. Times*, 24/8.

QUALIFICATION FOR PROMOTION.—Unusual circumstances recently attending the finding of a naval examining board have led to a ruling in the Navy Department that such a board must, under the law, express the opinion which the members themselves entertain after an investigation of all the evidence before the board. The board found, in effect, that, "no matter what its personal feelings may be," a certain candidate was morally qualified for promotion, because the members of a court-martial had acquitted him of serious offences with which he had been charged, and the board "has not the power to question the findings of said court." The finding of the naval examining board in this case was not satisfactory and was not accepted by the department, for the reason that it withheld the very opinion which the board was ordered to express—that of the board itself—and relied instead upon the finding of a general court-martial, which finding in point of fact was disapproved by the convening authority. It is well settled that the fact that a case has been acted upon, or that no action has been taken in certain premises, does not close that portion of an officer's record to which it relates in such a manner as to relieve an examining board from the responsibility of scrutinizing it; and, even in the event of an acquittal by a court-martial, an examining board still has the duty cast upon it by express provisions of law to examine into the facts and outcome of such trial in order to determine for itself the effect, if any, that should

be given thereto with reference to the officer's qualifications for promotion. Moreover, the finding of a court-martial, even if approved, would not be conclusive upon an examining board for the reason that a court-martial cannot properly arrive at a finding of "guilty" unless the evidence establishes the guilt of the accused beyond a reasonable doubt; while, on the other hand, members of an examining board are not required to be satisfied beyond a reasonable doubt that a candidate is not qualified for promotion, but instead are forbidden to recommend any officer for promotion "as to whose fitness a doubt exists." In other words, before a court-martial every doubt must be resolved in favor of an accused, while before an examining board any doubts must be resolved against the candidate, and the existence of a doubt as to his fitness requires that he be not recommended for promotion.—*Army and Navy Register,* 12/8.

TRADE ORGANIZATIONS FAVOR UNIVERSAL MILITARY TRAINING.—Still another poll has been recorded by the Chamber of Commerce of the United States in favor of universal military training. Last month we announced that a poll of the chambers by the national body had disclosed a sentiment among their members in favor of this measure so strong as to amount, in some cases, 120 to 1. Now, for the second time, comes the National Chamber with a poll of 350 trade bodies throughout the United States. In 26 states there was not a single vote recorded in any trade organization against universal military training, all are unanimously in favor. Sixteen states also showed substantial majorities for the measure. Five failed to respond; only one state, Alabama, voted against the proposition.

The inference is clear, the moral, perhaps, no less so. There appears, indeed, to be an overwhelming popular sentiment in favor of the manly, straight-forward, and democratic principle of universal military training.—*National Review,* September.

ACTING ENSIGNS FOR ENGINEERING DUTY.—The appointment of 30 acting ensigns yearly, to be selected from the graduates of technical schools and colleges, is one of the important provisions of the naval appropriation bill which will appeal strongly to young men who wish to specialize in marine engineering and obtain commissions in the navy.

The new officers will be given special courses of instruction as student officers for one year and will be sent to sea for two years preliminary to final examination to determine their fitness for the service. During the three years as acting ensign the Secretary of the Navy has authority to revoke the appointment of any officer appointed under this provision of the bill, but after the final examination for junior lieutenant has been passed these officers will have the same status as other junior lieutenants in the service.

The pay of an ensign at sea is $1870 per year; on shore it is $1700, plus allowances for quarters, heat, and light. Preliminary investigation shows that the appointments will be much sought after, and it will probably be desirable to issue them as rewards of excellence determined by competitive examinations among the graduates of the various technical schools and colleges whose curriculum is approved by the Secretary of the Navy, and among those who have received a degree of mechanical or electrical engineer from a college or university of high standing.

The execution of this provision of the bill will operate to assist many deserving young men throughout the country to obtain the much desired commissions in the navy, together with all the benefits of military training and healthful physical exercise.

Competitive examinations for appointment from graduates of the ages of 20 to 25, inclusive, on December 1, 1916, who are citizens of the United States, will be held in November, and applications for the privilege of taking this examination must be on file in the department not later than October 1, 1916.

Applications must be addressed to the Bureau of Navigation, Navy Department, Washington, D. C., and must be in the handwriting of the applicant and signed by him, must give full name and address, citizenship, date and place of birth, state of which a resident, occupation, date of graduation and name and address of technical school or college from which graduated, character of degree conferred, and a description of any important scientific work performed before or after graduation.

Applications must be accompanied by a certificate from the faculty of the school or college from which graduated, showing the full course pursued, relative standing of the applicant, the degree conferred upon him, and his deportment as a student.

Applications must be accompanied by testimonials of good moral character and correct habits from at least two persons of prominence who have personally known the applicant long enough to form a correct opinion of him.

As soon as practicable after October 1, 1916, accepted candidates will be authorized to report for examination. It is expected that arrangements will be made with the Civil Service Commission to hold the examinations as near as practicable to the home of the candidate or to the place designated by him. Before appointment candidates must pass satisfactorily a physical examination before a board of medical officers of the navy.—*Army and Navy Register*, 26/8.

THE AUGUST MANEUVERS.—The greatest war game ever undertaken by the American Navy ended with a victory for Admiral Mayo's "Red" fleet, which theoretically wiped out the defending "Blue" fleet and landed an invading army at Far Rockaway Beach, Long Island.

Rear Admiral Knight, acting as umpire, announced the result in his report to the Navy Department:

"Maneuver completed. Red and Blue bodies engaged 9.30 to 10.30 this morning 10 miles southeast of Ambrose lightship. Blue decisively defeated, Red gaining command of sea. Red effects landing at Far Rockaway and secures base."

The final report closely followed one announcing that Rear Admiral Helm's "Blue" defending fleet virtually had been annihilated in a dramatic fight off Scotland lightship at the entrance of New York harbor. With the exception of a few light craft, the entire "Blue" fleet was "sunk." The full extent of the "Red" losses was not known last night, although early reports showed that they included the superdreadnoughts *Nevada* and *Texas* and two destroyers.

With Admiral Helm's fleet out of the way, only a thin line of submarines remained to protect the coast. Then these, too, were quickly disposed of by the "Red" fleet and with nothing left to interrupt the landing of troops from his transports, Admiral Mayo was declared victor in the game and the ships, "Red" and "Blue" alike, started for Newport after four days of arduous duty at sea.

The story of the game as pieced together from radio reports to the Navy Department indicates that the tactics of Admiral Mayo completely puzzled Admiral Helm and forced him to accept battle in a position from which there was no hope of escape. The umpire declared the "Blue" fleet destroyed hours before the time limit of the action expired.

When the game began Admiral Helm's fleet was assembled at Narragansett while Admiral Mayo with his fleet and long transport train were 600 miles off Cape Hatteras. At 6 a. m., August 22, Admiral Helm received word of his enemy's location, and his 17 scouts swept out to sea in a long circling line. An hour later the "Blue" battleships also were at sea following the scouts.

The cruiser *Baltimore* sighted five battleships, two cruisers and three other units of the "Red" fleet at 6 p. m., August 23. They were 500 miles

off the coast, steaming west. The *Baltimore* dared not attack such a force, and presumably fled for safety.

It was 11 a. m., August 25, before the "Red" force again was sighted. This time it was a battleship which was picked up 120 miles off New York. Again the "Blue" scout was outmatched.

At 5.30 p. m., August 25, the destroyer *Benham*, later reported destroyed in action, sighted the "Red" transport train 75 miles off the New Jersey coast. Relying on her speed to escape the convoying warships, the *Benham* followed the transports, keeping Admiral Helm informed. At that time the "Blue" battle fleet was 15 miles farther in shore, steaming in a line parallel to the transport train. At 8.30 the same evening the *Benham* reported that three enemy battleships and the transport train had headed in shore to make a landing.

Admiral Helm drove his battle fleet forward to intercept the "enemy" at daylight. He sighted the "Red" ships at 5 o'clock this morning. The transport train was steaming in toward the Long Island coast with its destroyer screen thrown out to southward. During the night, however, the "Red" battle fleet also had come up, and steaming parallel to the transports and between them and the "Blue" fleet, interposed itself to cut off Admiral Helm's attack.

The fleets engaged promptly, but the "Blue" position was hopeless. To cut off the rush of the transports for the coast it had to swing sharply to the west. As the "Blue" ships came to the turn they filed in one at a time and caught the concentrated fire of Admiral Mayo's guns.

While the battle still was in progress Admiral Helm played his last card. The 17 submarines, mobilized at Block Island the preceding night, were following the movements of the "Red" transports, but keeping well in shore as a last line of defence. Daylight found them within an hour or two of the chosen landing point of the invaders. Admiral Helm ordered them forward in a desperate effort to destroy the troopships, but they were not equal to the task, and the transports and their shielding fighting ships steamed by victorious.

The need for more scouts, more coast defence submarines and hydro-aeroplanes are the chief lessons of the naval war game just completed off the Atlantic coast, according to Rear Admiral Benson, chief of operations.

"Weather conditions proved just what we had hoped for, but hardly expected," said the admiral. "The theoretical battle was fought in rough weather and with a low visibility, which made it very difficult to distinguish the ships at sea.

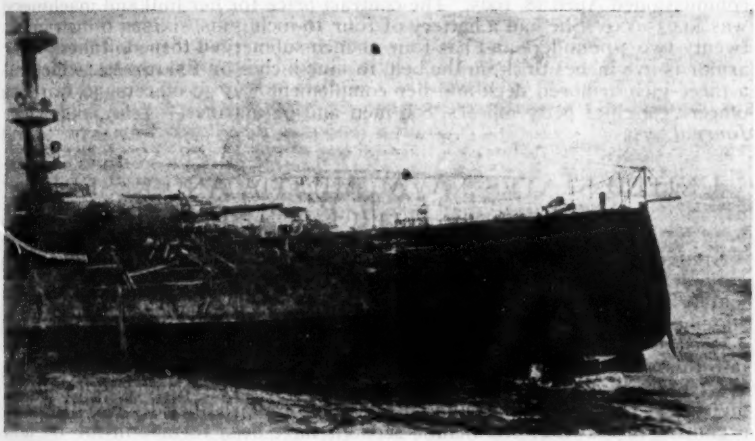
"This made the search problem all the more exacting. We must develop a thorough and complete system of search. The war game also shows clearly what value hydro-aeroplanes would have been to the defending forces."

The navy, the admiral says, is having trouble with its hydro-aeroplanes. It is difficult for these craft to land on the water without damaging their pontoons, especially in rough weather. The machines cannot check their speed as they alight, and this gives such a jar that the structural part of the planes is endangered. The department is experimenting with different shaped pontoons in the hope of solving the problem.—*Army and Navy Register*, 2/9.

LOSS OF THE U. S. S. "MEMPHIS."—The United States armored cruiser *Memphis*, Captain Edward L. Beach commanding, flagship of Rear Admiral Charles F. Pond, commanding the cruiser force of the Atlantic fleet, was driven ashore at Santo Domingo City by a terrific ground swell during a sudden tropical storm late on the afternoon of August 29, and is reported a total wreck. Advices received at the Navy Department on August 30, while incomplete, indicated that possibly more than 30 bluejackets lost their lives. Thirty-three men are officially reported missing, and Lieutenant Claud A. Jones, engineer officer, and 77 of the crew were more or less seriously injured.

Rear Admiral Pond's first messages to the Navy Department concerning the wreck, received August 29, said: "*Memphis* driven ashore by heavy seas, Santo Domingo City, west of lighthouse, 4.40 p. m.; lying close under bluff; has lines ashore and getting crew off. Bootes (captain of marines), and myself went ashore 2 p. m. Sea then unusually smooth. Ship evidently unable to get up steam in time to save her. Twenty men, liberty party, drowned going back. Lieutenant Jones and several men of engineer force brought ashore severely scalded from boiler accident. Have not learned particulars. *Castine* dragged close in, but did not strike, and got out to sea. No other casualties to officers known. *Memphis* will be total loss. Expect to save everybody on board."

"All off ship. Steam was gotten up and the engines were working when the main steam pipe burst. Unable to determine cause at this time. Those near too injured to question. Captain Beach was last to leave ship. *Castine* safe at sea with disabled steering gear, and all boats but one lost, but vessel under control. Sea perfectly smooth until after 3 p. m."



THE "MEMPHIS" AGROUND OFF SANTO DOMINGO CITY
(Photo from *New York Herald*)

The last message from Rear Admiral Pond on August 30 said: "Sea smooth. *Memphis* solidly ashore, eight feet out of water. Working party on board securing records and landing stores. Crew quartered in town. Hospital facilities ample. From first indication of trouble until ship struck, less than one hour."

A wireless despatch was received August 30 from the United States gunboat *Castine*, which put to sea when the storm broke. The message said the vessel was cruising in front of the harbor. Later in the day the sea became smoother and the landing of the seamen with their belongings from the *Memphis* was effected.

The tender *Dixie*, Commander J. R. P. Pringle, en route from Vera Cruz, Mexico to Key West, Fla., with Louis Cabrera, of the Mexican Commission, and James Linn Rodgers, Special Agent of the State Department, was ordered to proceed to Santo Domingo City from Key West. She will take aboard the officers and crew of the *Memphis* and return them to the United States. The cruiser *Salem* will go to Santo Domingo to take the place of the *Memphis*.

The hospital ship *Solace*, Medical Inspector Robert M. Kennedy, which has been collecting ailing American marines from Haitian ports to take them north, was directed to proceed at once to Santo Domingo City to take charge of the wounded.

Although the *Memphis* is reported by Rear Admiral Charles F. Pond to be a total loss, the Navy Department on August 31 ordered Naval Constructor William G. Du Bose to proceed to Santo Domingo City from the Norfolk Navy Yard to determine whether the vessel can be saved. He was directed to proceed by rail to Key West, Fla., where he will board the transport *Hancock*.

The navy tug *Potomac*, Chief Boatswain Peter Emory, which left Santo Domingo City for Port Palenque at 1.30 p. m., August 29, just before the storm broke, is thought to be safe, although there is no word from her.

The *Memphis*, formerly the *Tennessee*, was an armored cruiser with a full load displacement of 15,712 tons. She had a length over all of 504 feet 5 inches and a full load draft of 26 feet 11 inches and her speed on trial was 22.16 knots. She was launched September 12, 1903, and was first commissioned April 18, 1905. The contract price for her hull and machinery was $4,035,000. She had a battery of four 10-inch guns, sixteen 6-inch guns, twenty-two 3-pounders and has four 21-inch submerged torpedo tubes. Her armor is five inches thick on the belt, to nine inches on the turrets. She had a three-inch armored deck and her complement was 39 officers, 10 warrant officers, 34 chief petty officers, 806 men and 64 marines.—*Army and Navy Journal*, 2/9.

UNITED STATES NAVAL MILITIA AND RESERVE FORCE

STRENGTH OF THE NAVAL MILITIA.—The organized naval militia of the United States has shown an increase in strength of personnel of approximately 20 per cent in the last fiscal year ended June 30, according to a statement issued by the Navy Department on August 23. The total strength now is 9300 men and 700 officers. In the last six months there were mustered into this service a marine company at Chicago, a deck division at Sarasota, Fla.; a marine company at Brooklyn, a deck division at Niagara Falls, a deck division at Houston, Texas, and one at Everett, Wash., besides two divisions organized in Hawaii. Aeronautic sections have been formed in the 1st and 2d battalions of the New York Naval Militia, and also in Rhode Island, New Jersey, Massachusetts, California, Ohio and Oregon. The majority of these have their own aeroplanes.—*Army and Navy Journal*, 26/8.

THE MARINE CORPS "PLATTSBURGH."—Captain Logan Feland opened on July 24, a camp of instruction at Landsdowne, Pa., for civilians who are desirous of putting themselves in a state of preparedness in the marine corps fashion. The course of instruction at this camp, as well as in one which will be opened later at Wakefield, Mass., is along the same line as the course at the recruit depots at Mare Island and Port Royal, modified to cover a course of three weeks. Marine officers and non-commissioned officers will act as drill masters, and supervise the work, and marine corps cooks have been detailed in charge of the kitchens. "All night in and beans for breakfast" will be no mystery for the graduates of this camp, and the society club men who have volunteered for the course will realize that soldiering is not all beer and skittles.—*Marine Corps Gazette*, August.

CIVILIAN VOLUNTEERS' CRUISE.—With some 800 civilians desiring to taste the life of a bluejacket aboard during a month's cruise, the United States battleships *Kentucky*, *Maine* and *New Jersey*, of the reserve force of the Atlantic fleet, left New York August 16 for a month's cruise. The vessels were bound for the rendezvous at Fort Pond Bay, Long Island, with Rear

Admiral Helm aboard the *Rhode Island* in command. At Fort Pond Bay the *Kentucky, New Jersey* and *Maine* join six other battleships of the reserve fleet, on which are a total of some 2000 civilian bluejackets from all parts of the country. They will have target practice with small arms, boat drills and will be instructed in the usual ship routine. Later, the training fleet will steam to Lynnhaven Bay and give the students an opportunity to handle the 1-pounders mounted in ship's boats.

Upon the eve of the embarkation of the civilian bluejackets at New York for a cruise on warships for a month Secretary Daniels sent the following message to Rear Admiral Helm: "Upon the embarking of the more than two thousand civilians who are to take part in the civilian cruise I wish to convey to them the congratulations of the Navy Department that we can welcome them as the newest recruits of the first arm of the national defence. I am sure under the instruction which you and the other officers will give them their cruise will be of great benefit to them and their country." The Secretary received the following reply from Admiral Helm August 16 on board the *Rhode Island:* "Your message received and appreciated. Will be published on all vessels taking part in the cruise."—*Army and Navy Journal,* 19/8.

CRUISE OF POWER BOATS.—Rear Admiral J. M. Helm, United States Navy, commanding the reserve force of the Atlantic fleet, has issued from the flagship *Rhode Island* full details of the order of maneuvers to be followed by the power boat division of the civilian training cruise.

The details are very complete and cover the exercises of the power boats for the last week of the cruise, from September 5 to 12. Maneuvers for the week will be held off Boston, Newport, New York, and the Delaware capes, and while the coast is divided into naval districts, it is the intention, as far as possible, to have the fleets cooperate, making it one great defence of those important ports.

The senior naval officers present will be in command of the maneuvers and the program provides that the fleet shall be composed and assigned as follows:

Boston—Battleship *Kearsarge,* two destroyers, power boat patrol groups, one gasoline and oil barge.

Newport—Battleship *Virginia,* two destroyers, power boat group, one division of submarines and tender, one gasoline and oil barge.

New York—Three battleships, the *New Jersey, Maine* and *Kentucky;* two destroyers, power boat groups, one gasoline and oil barge and battleship steamers.

Delaware capes—Four battleships, the *Louisiana, Rhode Island, Alabama,* and *Illinois;* two destroyers, power boat patrol group, one division submarines and tender, one gasoline and oil barge, to assemble off Cold Spring Inlet.

The schedule for defence of New York includes the stationing of battleships off Gravesend Bay and in vicinity of Sandy Hook and at the head of Ambrose Channel. Patrol lines of motor boats will be established.

The first day will be devoted to tactical exercises to familiarize the crews with the ground over which they will operate and the appearance of the other boats. At night of the first day there will be signal drill between the various groups and the battleships.

The second day will be devoted to deployment. The power boats will rendezvous at Ambrose Channel from the bases at Gravesend and Sandy Hook, and proceed east to Rockaway and then to Monmouth Beach, and return to Ambrose Channel and then to their bases. These exercises are to familiarize the men with deploying, assembling and signaling tactics. That night there will be a series of night signals transmitted between the groups of power boats and battleships all along the coast from Boston to the Delaware capes.

Probably the most important operations of the entire maneuvers will be those of the third day. They comprise mine sweeping, communications, defence of battleships, and protection of harbors from attack by submarines. The smaller boats will be held in their home ports, while the larger will be sent to various points along the coast. Five suitable buoys will be marked and anchored during the night, representing floating mines.

Groups of power boats will leave their respective bases and deploy through the search area for the reported mines. When a mine is located the discovering boat will signal the fact along the line, to report in the most direct way with the senior officer, take the mine aboard and continue the search until all the mines have been located and recovered.

On the same day the submarine operations will be conducted off Delaware capes. Battleships will be anchored in a triangle, with Cape May, Norfolk, and Cape Henlopen as the points. At 8 a. m. the submarine division will leave Cold Spring Inlet and proceed to sea, accompanied by destroyers. When eastward of the line from Northeast End lightship and Fenwick Island shoal lightship they will submerge. When ready on their stations the destroyers will notify the base ship by wireless that submarines are approaching the capes. When this signal has been received by the patrol boats they will emerge from Cold Spring Inlet, deploy at the entrance and proceed, each boat toward its appointed base, searching for periscopes or boats running awash.

The submarine commanders will receive instructions to use every possible device to effect an entrance within a radius of 4000 yards from the battleships and come to the surface for range-finder distance. If the submarine is discovered the discovering boat should keep trace of her, if possible, and trail her, meantime signaling to other patrol boats of that group as quickly as possible and they will assemble on the discovering boat, the other groups remaining on their respective station so as to cover the exposed area left by the assembled group and watch for other submarines coming through.

That night at Boston there will be darkened search for surface craft attempting to attack battleships or enter the harbor. The battleships will shift their anchorage off Boston light after dark. Groups of patrol boats will take their stations and deploy on signal to start the exercises. Destroyers and steamers will then attempt to get through the lines from the eastward. If a patrol boat sight them she immediately gives the alarm signal and remains near until the battleships can get their searchlights on the enemy vessel.

The search for surface craft and destroyers attacking battleships off Ambrose Channel will occupy the New York division the third night.

On the fourth day the patrol group will assemble on the war fleet on signal from the battleship as a maneuver in formation, with the power boats forming a screen to protect the battleships from attack. There will also be exercises in signaling. The exercises of that night will be the same as on the night previous.

The fifth day will be practically a repetition of the fourth day. The fifth night will be the same as the third.

By order of Secretary Daniels, the date set for closing the book of enrollment for power boats has been extended to September 1 to give time for the delivery of several vessels now in course of construction. Other owners who at the last moment decided to enroll are given the opportunity until the above date.—*Army and Navy Register*, 26/8.

NO SPECIAL UNIFORM.—No special uniform has been specified to be worn by owners and members of their crew for this year's maneuvers, although it is proposed to do so in future. For the present it is understood that the suggestion has been made to owners that they wear their regular yachting clothes to distinguish them from the crew, and the latter probably will equip themselves with dungaree sailor suits and white canvas caps.—*N. Y. Herald.*

POWER BOATS INSURED.—Patriotism is chiefly responsible for many of the speedy motor boats built within the last year, and patriotism is undoubtedly one of the great rocks upon which this government is founded, which is not only made evident in individuals but in great business corporations in this country. Another demonstration of this fact has just cropped out in marine insurance companies in connection with the coming maneuvers of power boats in the naval training cruise now being held off this coast. The power boat program starts September 5, and the enrollments close on September 1.

During the maneuvers many craft will take part which are not only very speedy, and which it is hoped will be of great assistance to the government in time of need, but they are more or less valuable from a monetary standpoint, and many of them are insured in the marine insurance companies for more or less of their full value.

The insurance companies were asked if they would assume the risks, according to the original policies, of possible damage or destruction to these vessels during the training maneuvers, and they have taken the patriotic attitude that so long as it is in the interests of the government that these yachts have enrolled it is really up to the insurance companies to do their part by recognizing the justice of any possible claim to damages, in case of accident while in this service. Therefore they have agreed to pay all damages, whether vessels are running with lights screened or not.—*N. Y. Herald.*

RESULTS OF THE POWER BOAT MANEUVERS.—Uncle Sam should feel proud of the power boat fleet which has been operating in this the third naval district of the naval training cruise in and about the waters of New York harbor. Not only have the boats gone through the various maneuvers mapped out by trained officers of the navy, as well as capable owners of small craft, but they have been the means of giving to those owners a vast store of information which some day may be of great assistance to this country.

It was all an experiment, the result of which no one could forecast. The experiment has proved a happy one. Owners and crews alike declare they had no idea they would be able to pick up such a vast amount of useful knowledge about naval warfare in so short a time, and they are enthusiastic over the movement.

As to the government, it is safe to say it has started a movement which could not now be stopped, were that tried, and the motor boats have demonstrated that with capable men in charge they can go through all sorts of weather and act as patrol craft or mine sweepers in such manner as to form a valuable home guard along the coast.

When the movement started there were two questions which were uppermost in the minds of the committee in charge, the first being "Would the owners take the trouble to enroll their craft? and, second, after such enrolment would they take the time and trouble to mobilize and go through the maneuvers?" Both of these questions have been more than satisfactorily answered.

New Craft Ordered.—In the first place the owners not only enrolled their boats, but several of them gave orders to construction companies to build new ones in time for the maneuvers. That was a great step forward, but unfortunately the arrangements miscarried in several instances. The builders were unable, through non-delivery of material, to deliver the craft in time for this year's maneuvers, and again several which were delivered in time, as well as some of older date, were unable to get the necessary equipment of lights and signals and the owners were forced to sit by and watch the others operate, some of them being fortunate enough to join the crews of other craft.

As showing the different types of motor boats which were enrolled it is only necessary to call attention to a fact which worked to the detriment

of the maneuvers in this particular district, but had as an object the better instruction for owners. Some of the yachts were of very high speed and particularly adapted to chasing torpedo-boats at sea or working against submarines. New York harbor is a busy port, and it was not deemed advisable to have the more dangerous exercises in this vicinity, and therefore many of the craft which were enrolled from this district were sent to Newport, Boston and the Delaware capes, where extensive operations were directed against the submersibles.

Deserve Great Credit.—Of the craft which remained in this district too much cannot be said of their owners and crews. They were put through a course of training in signals and squadron work. Each day Captain L. A. Kaiser, of the battleship *New Jersey,* and Lieutenant J. W. Wilcox, U. S. N., gave them personal lectures and instruction. They were subsequently given practical demonstrations through the evolutions, which were all conducted by signal, the captain of each craft acting at different times as the flag officer. E. S. Willard worked hard over the cooperation of seaplanes, the result being a search for submerged mines at the entrance to the harbor by two torpedo destroyers, the *Gem* and the *Dodger II,* while the hydro-aeroplane operated by F. T. Davison and D. H. McCullough hovered in the air and pointed out the direction of the mines which it discovered. Five mines were planted in unknown positions and all five were recovered.

But aside from the serious work in hand the sporting element of these civilians could not be downed, as was demonstrated when the seaplane was lost to sight in the midst of a heavy squall. The *Gem* and the *Dodger II* put out to sea in search of the torpedo-boats, which had left several hours previously.

The hydro-aeroplane followed later and was well down the bay when the squall hit her. Having failed in their particular mission the *Gem* and the *Dodger II* put back. When part way up the Ambrose Channel the *Dodger II* was hailed by Thomas W. Slocum's steam yacht *Ranger,* which Mr. Slocum had placed at the disposal of the officials and press, and asked what became of the seaplane. Mr. Willard and Mr. Pratt were very much surprised and did not know anything about her, having failed to pick her out of the sky. There was a very hard, choppy sea and a heavy northwest wind blowing, but without hesitation the little craft was put about and headed out to sea in search of the aviators, who later made a successful landing at Oak Island after having sighted the enemy.

Willing to Take a Chance.—Such a performance demonstrates that the men behind the movement are willing to take a chance at any time it is necessary, irrespective of weather conditions.

The vessels which finally were selected by the Navy Department for the operations in these waters were the *Atlantas,* Leonard Dyer; the *Psyche IV,* R. H. Ingersoll; the *Psyche V,* M. S. Bentham; the *Sunbeam II,* R. T. Roosevelt; the *Barracuda,* August Belmont, Jr.; the *Lillian II,* S. F. Rothschild; the *Florence,* Matthew Rock; the *Rosa,* Sigmund Cohn; the *Zita,* Horace E. Boucher; the *Alturian II,* W. W. Brown; the *Dodger II,* Harold I. Pratt; the *Mustang,* H. S. Beardsley; the *Gem,* William Ziegler, Jr.; the *Priscilla,* F. S. Fisher, and the *Kalevala,* H. J. Thompson.—*N. Y. Herald.*

NAVY DEPARTMENT LISTING POWER BOATS.—The Navy Department is making excellent progress in listing all motor boats that would be available as patrol boats in the event of war. To secure as many motor boats for auxiliaries to the fleet as possible, the department has appointed boards at all the navy yards. Inspection blanks containing 60 questions have been prepared in the department which indicate the availability of fast motor boats for service in the navy. Owners of motor boats have been asked to submit their craft to the boards at the navy yard and many have complied.—*Army and Navy Journal,* 9/9.

NAVIGATION AND RADIO

RADIO STATION AT NAVASSA ISLAND.—A radio station has been installed at Navassa Island light in the West Indies. The station will be controlled and operated by the United States.

THE "NAVAL COMMUNICATION SERVICE."—The name of the United States Naval Radio Service has been changed to "Naval Communication Service," and the title of the head of the service has been changed to "Director, Naval Communications."

THE SPERRY SEARCH-LIGHT.—*The Journal of the United States Artillery*, July-August, 1916, presents an interesting article on the Sperry Search-light, by Captain Adelno Gibson, C. A. C. Captain Gibson states that an increase of some 300 per cent in specific brilliancy over the old search-light arc has been accomplished by the use of superheated vapor, formed from powerful light producing materials with which the positive carbon is impregnated. The luminous vapor is pressed into the unusually deep positive crater by the action of the arc flame from the negative carbon. The arc gives an intense illumination—about 320,000 candle-power per square inch; and for a given candle-power the source of light has a smaller area than in the old search-light, thus reducing the angle of spread and making the beam more nearly parallel throughout its length. A distinctive feature is the great length of the positive carbon, made necessary by the rapid burning required to supply the luminous gases. A shunt motor rotates the positive carbon to center the crater, and operates the feeding mechanism. The positive carbon is kept in the focus of the mirror by feed mechanism controlled by a thermostat upon which the heat of the arc falls when it burns away from the focus. The arc length is controlled by the negative carbon feed, operated by a solenoid connected across the arc. Hand controls supplement the automatic controls. The projector is fitted with distant electric control. Sperry lamps may be installed in old projectors, replacing the original arc.

ORDNANCE AND GUNNERY

THE LEWIS MACHINE GUN.—A trial was recently made at the camp at Plattsburg, N. Y., of the Lewis machine gun and the Benét-Mercier machine gun. The board state their unanimous opinion that the Lewis machine gun showed superiority in every test over the Benét-Mercier gun, which is the regular machine gun equipment of the United States Army. This was particularly emphasized in the night firing tests.

Particular attention was given to the sand and mud tests. The loaded magazines were filled with wet and dry sand and were fired without cleaning, except removal of such sand as fell out when magazines were shaken. The Lewis guns fired the required number of shots in one minute and three seconds, while the Benét-Mercier guns fired only eight or ten shots in five minutes of firing and went out of action for the balance of the tests, having become jammed and unable to continue the tests. The Lewis gun immediately thereafter fired 188 shots in 53 seconds, to demonstrate its functioning without the sand being removed from the gun.

The most interesting test, however, was when the magazines of both guns were filled with thick mud, guns remaining uncleaned after the sand test. The Lewis gun performed in 48 seconds, while the Benét-Mercier guns were unable to function after the sand test, and therefore did not even attempt to enter the mud tests. After the conclusion of these tests the Lewis guns fired 20 shots with deformed cartridges and battered shells in three seconds.

The Benét-Mercier guns used were those of the 2d United States Cavalry. Lieutenant Philip Gordon, commanding the machine gun troops of that

regiment, stated that they were in the best possible condition at the time of the tests. The official report concludes as follows:

"In the opinion of the board the mobility of the two guns is practically the same. Each can be handled by one man; the size of the crew depends simply upon the amount of ammunition carried. The superiority of the Lewis gun in every other particular was clearly demonstrated, the following special advantages being noted:

"(1) Simplicity—this was especially important in the night work; (2) the comparative rapidity and ease with which a fresh magazine may be attached and removed in case of jam; (3) more efficient cooling device; (4) ease in cocking piece for first shot; (5) comparative ease in reduction of jams; (6) remarkably satisfactory action in mud and sand tests, and with deformed cartridges."

Following the order of the War Department for 250 Lewis machine guns, which have already been inspected by Major Stewart, U. S. A., and shipped to the Mexican border, the manufacturers of the gun, the Savage Arms Company, have arranged to send Colonel J. J. Dooley, N. G. S. M., nationally known as a rifle and machine gun expert, to the several headquarters in Texas to supervise the instruction of machine gun companies in the use of Lewis guns, at the request of the government. Being light enough for one man to carry in open order skirmishing, it is probable that new drill tactics will be evolved. The War Department has given an order for 100 Lewis guns in addition to the 250 previously reported. This is the gun invented by Colonel I. N. Lewis, U. S. A., retired, and it has been used in great number by the Allies in the war in Europe.—*Army and Navy Journal*, 15/7.

ANTI-AIRCRAFT GUNS IN U. S. NAVY.—An anti-aircraft gun, the first to be used by the United States Navy, will supplement the armament of the entire battleship fleet and a number of designated cruisers, according to an announcement made in Washington on July 17. The battleships *Pennsylvania* and *Nevada* already have been equipped with these guns, and 18 other ships and cruisers are to be fitted out as rapidly as they are available for navy yard work. The new defence weapon is the result of a three-year experiment by the navy experts of the Bureau of Ordnance. It consists of a machine rifle about 50 calibers long and capable of hurling a three-inch shell 27,000 feet into the air at an angle of 90 degrees and can deliver its charge at rapid fire rate. Two of these guns are to be placed on each vessel. They will be riveted fore and aft on the rear stand of the gun turrets so as to give them the best possible firing radius. In this manner they can be swung into position for firing in all directions. On the boats mounting the old type of turret they will be placed on the boat stands or in the most available location. Naval experts, under the direction of Rear Admiral Joseph Strauss, Chief of the Bureau of Ordnance, have worked three years in turning out the gun. In its development the department has been forced to discard several types. The design of the gun to be used is credited particularly to the officers and experts connected with the bureau, among them being Commander G. R. Marvell, Commander A. L. Norton, retired, and Commander C. B. McVay, U. S. N., assistant to the bureau, who has played a prominent part in its development. With regard to the availability of the gun, Commander McVay has stated that it was easily constructed, and in an urgent case he had no doubt it would be possible to equip the land forces of the country with a sufficient number of the guns. For the present their use will be confined to the navy.—*Army and Navy Journal*, 22/7.

SUBMARINES' GUNS IN U. S. NAVY.—A satisfactory test of a new submarine gun has recently been conducted by the Bureau of Ordnance. All the new submarines will be armed with guns as well as torpedoes. The new gun is of 3-inch caliber with disappearing carriage.—*Army and Navy Journal*, 29/7.

ENGINEERING

MONAL METAL.—At a time when special attention is devoted to the problem of preventing corrosion in marine fittings, monal (or monel as it is sometimes spelt) metal, inevitably figures in the discussion. The circumscribed area of production, as well as past difficulties in refining, are factors which have stood in the way of development.

Alike in its natural and refined state this substance is a natural alloy. It resembles nickel in appearance and is composed of about 67 per cent nickel, and 27 per cent copper and 6 per cent of manganese and iron. When cast the tensile strength is about 31 tons per square inch, and when rolled this strength is increased to 45 tons. It can be electrically welded, forged, brazed and soldered, so that it is suitable for turbine nozzles, propellers and fittings subject to salt water, superheated steam, etc. According to some metallicians the percentage of copper is 30 per cent, but we take the lower figure. The exact percentage is not material so long as this natural alloy fulfils its purpose.

It is derived from nickel ore obtained in Ontario, and during the process of smelting and refining the nickel and copper retain their relative proportions. Classed as pyrrhotite, or sulphite of copper, nickel, and iron, it is found intimately mixed with granite rock as an agglomerate mass in the metallurgical treatment of ore. Blast furnaces and Bessemer converters are used in smelting, and then the refining process illustrates some of the difficulties which have been overcome of late. Not until about four years ago, after numerous experiments, was it found possible to place monal metal on the market.

No one can doubt that, industrially, it is a valuable production. Silver white in color, it can be distinguished from pure nickel. It takes a brilliant finish, which it retains indefinitely. After heating or prolonged exposure, the surface assumes a greyish cast, but this can be removed with a polishing cloth. Monal melts at 1360° C. It is harder than copper, yet so ductile that it can be drawn into the finest wire. Joining is readily effected by means of ordinary brazing solder on the oxy-acetylene torch. Like iron and steel it is produced in cast form or in rolled bars, rods or sheets. Moreover, it machines easily.

Strength and resistance to corrosion are two factors which specially constitute it an alloy for engineering purposes. When rolled and annealed it is equal to nickel steel.

In the majority of cases where steel or acid resisting bronzes are attacked, monal metal is practically unaffected. An interesting test was made by immersing this alloy in sulphuric acid for a long period, and by boiling lathe turnings in similar acid for 48 hours. The only result consisted of a loss of 0.5 per cent in boiling the fine, divided material.

Apparently the metal is unaffected by sea water, whereas, bronze, copper or iron, under similar conditions, soon becomes pitted, and chemical fumes appear to exert no influence. In connection with various manufactures where chemicals are used, such articles as containers, etc., have given complete satisfaction. It is in the form of castings that monal metal now finds its greatest demand.

Within the past few years the United States Government, through the Navy Department, has made tests that led to an important decision. The deparment decided that it had found the best material for certain forms of marine work, and monal metal is now specified for such outboard connections of warships as would be rapidly corroded by sea water. Valve seats and liners for pumps, when made of this metal, have been found far superior to bronze. On one warship an interesting experiment was conducted. A number of pumps were fitted with monal metal items, and other pumps were fitted with bronze. At the end of six months the bronze equipment had to be replaced, the monal metal fittings showed practically no wear.

Using this test as a basis the United States Navy now requires that the pumping equipment of its ships shall be fitted with monal metal. In connection with very high steam pressure, where superheated steam is used, the alternating heating and cooling of bronze or steel valve seats will soon produce a granular and crumbling effect, but the natural alloy under notice appears to defy such changes. Its resistance to natural agencies and to the attacks of chemicals marks it as one of the most interesting substances in the metal market to-day.—*Page's Engineering Weekly*, 21/7.

GYROSCOPIC SHIP STABILIZERS.—The announcement made elsewhere in this issue that the Navy Department of the United States has ordered the construction of two new submarines and a 10,000-ton transport, each to be provided with gyroscopic stablizing plant, will no doubt be received with considerable interest by naval architects and shipbuilders in this country. Here there is, or seems to be, a very general feeling that the gyroscope is something to be viewed with suspicion, as a box of tricks providing apparently endless amusement of a congenial nature for the mathematically minded, but is too complicated to be of any considerable practical service. It is, of course, perfectly well known that the gyroscope has from the first been an essential element in the mechanism of the "Whitehead" torpedo, that the gyroscopic compass—as witness, for example, its reported employment on the German submarine *UC-5*—seems to be establishing its position, and that gyroscopic means for automatically controlling the stability of aeroplanes is attracting the attention of people other than pure theorists. These applications of the gyroscope, however successful or promising, do not assist us much, it must be confessed, in discussing the gyroscopic stabilizing of ships, for the conditions are either so dissimilar, or if similar, as in the case of the aeroplane, are on such a different scale as to render comparison and deduction and all argument from the one case to the other impossible or futile. Direct experiment on the stabilizing of ships by means of gyroscopes will alone satisfy practical naval architects and shipbuilders. Neither theory nor success in other directions is likely to have the least weight with them, and in both these respects we think circumstances justify this course.

Looking into the subject as it presents itself to-day we find two main questions awaiting answers. Firstly, can ships be satisfactorily stabilized by means of gyroscopes? Secondly, if so, what advantages do ships so stabilized possess over ships not artificially stabilized or stabilized by other means such as anti-rolling tanks? As regards the first question, the answer seems to be undoubtedly in the affirmative. The results of direct experiments can be adduced in support of this. Thus the German ex-torpedo-boat *See-bar* fitted with the Schlick system of gyroscopic steadying gear was tested during 1906 and showed that an arc of rolling, "out-to-out," of 30 degrees could, when the gyroscope was brought into action, be rendered to one of one degree. The MacBrayne steamer *Lochiel*, fitted with the same system, in 1908, had an unrestrained roll of 32 degrees, which, with the gyroscope at work, was brought down to about 3 degrees. The only other system of gyroscopic stabilizing of which anything of importance has been heard is the Sperry. Two sets of experiments with this system are referred to elsewhere in to-day's issue. In one case purely experimental apparatus installed on board the United States destroyer *Worden*, a notoriously bad sea boat, reduced the total roll in heavy sea-way to a maximum of 5 degrees. More refined apparatus on board the *Widgeon*, an oil-driven pleasure yacht of 165 tons displacement, quenched an unrestricted out-to-out roll of 50 degrees and reduced it to about 3 degrees. From these figures it clearly appears that gyroscopic apparatus can be used very materially to reduce the rolling motion of vessels—at least, of comparatively small vessels. Our first question, however, was qualified by the word "satisfactorily." The stabilization would clearly not be satisfactory if the stabilizing apparatus, however effective, occupied an excessive amount

of room within the vessel or excessively increased its weight or absorbed in its driving an excessive amount of power. Nor would it be satisfactory if its action resulted in excessive stresses being thrown upon the hull framing, which would thereby threaten to buckle in every heavy sea. These points can only be discussed, of course, if we know the details of the design and construction of the gyroscopic apparatus installed. Descending therefore to the details of the only two practical systems—the Schlick and the Sperry—for which experimental results are available, we must notice a difference between the two systems which is of prime importance in our discussion of whether or no the stabilization obtained is obtained satisfactorily. It is somewhat difficult to express this difference in language simple enough for all to understand it. Matters, however, may be put something like this: The object aimed at in the Schlick system is not so much the generation of a rolling moment countering the rolling action of the waves as the lengthening of the natural period of oscillation of the vessel, so that this period shall no longer synchronize with that of the waves. As the two periods become increasingly out of step the waves themselves damp out the oscillations of the vessel. This effect is obtained by fitting a pendulum inside the vessel so as to vibrate in a fore and aft plane. By means of a gyroscope this pendulum is caused to oscillate when the ship rolls, but in such a way that the pendulum lags behind the swing of the boat. The turning moment applied to the ship by the waves is thus spent, not simply in one but in two directions. It has to cause the ship to roll against the natural righting moment derived from the wedges of immersion and emersion, and it has to cause the pendulum bob to rise against gravity. It follows, then, that whatever portion of the wave energy is spent on the pendulum bob is so much deducted from the wave energy spent on the rolling of the ship. The ship therefore rolls with a reduced velocity, so that in time its oscillations get out of step with the period of the waves. In the Sperry system, on the other hand, the object aimed at is the direct application to the hull of the vessel of an artificial moment which shall counter the rolling moment of the waves. The stabilizing gyroscope spins on a vertical axis and rotates within a casing provided with trunnions which rest in athwartship bearings. When the vessel rolls, say, to starboard, the port trunnion exercises a direct downward thrust on its bearing, while the starboard trunnion exercises an upward thrust on the cap of its bearing. This effect is secured simply by causing the gyroscope casing to rotate on its trunnions so that the top end of the gyroscope axis moves towards the bow or stern, according as the vessel rolls to starboard or port. The rotation of the casing is brought about by a reversible electric motor. The forward and reverse circuits feeding this motor are made and broken by a small delicate control gyroscope provided with suitable contacts. The differences between the two systems are thus several and distinct. Under the Schlick system the force checking the rolling of the ship is really that of the waves themselves meeting the side of the hull moving on to the waves. In other words, the checking force is distributed over more or less the entire side of the hull. Under the Sperry system the checking force is concentrated at two bearings within the hull. These circumstances must be remembered in discussing the effect which gyroscopic stabilizers have on the structure of vessels in which they are installed. As regards the room occupied and the weight of the apparatus, it may be mentioned that the Schlick apparatus in the *See-bar*, a vessel of 56 tons displacement, had a weight of about 1½ tons, and occupied a height of 7 feet and a width of 8 feet 3 inches. As the extreme breadth of the vessel was 11 feet 9 inches, and its mean draft 3 feet 6 inches, it will be seen that the apparatus added some 2½ per cent to the vessel's displacement, and occupied a very considerable proportion of her maximum cross-sectional area. The Sperry apparatus on board the destroyer *Worden* admittedly took up a great deal of space and weighed more than was desirable. But this installation, and to a lesser degree that on board the *See-bar*,

was of an experimental nature, and from neither must rigid opinions be formed on this important aspect of the gyroscopic stabilizer. It seems to be undoubtedly the case that the larger the vessel the less proportionately will be the weight of and the space occupied by gyroscopic stabilizers. Thus in the projected design of such apparatus on the Schlick system for a cross-channel steamer of some 2000 tons displacement the whole gear would weigh about 12 tons, or 0.6 per cent, of the vessel's displacement, and would occupy over-all dimensions bigger only by a few inches than those of the *Sea-bar* apparatus. In the case of the *Widgeon* the Sperry apparatus weighs about 1½ tons, or something like one per cent of the vessel's displacement, while in the 10,000-ton transport now being built the apparatus will, it is believed, weigh not more than 0.8 per cent of the displacement. Regarding the consumption of power by gyroscopic stabilizing apparatus we can say very little for the present. There is, however, no reason to believe that the consumption would average a high figure, although it would, at least in the Sperry system, and probably to a lesser extent in the Schlick system, fluctuate momentarily to values considerably above the average.

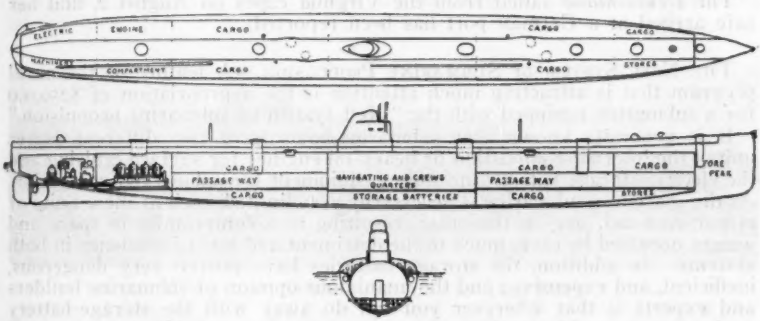
It may, then, be taken as definitely established that ships can be satisfactorily stabilized by means of gyroscopes. The further questions, When is it desirable so to stablize ships, and what advantages does this method possess over other means of securing the same ends? are quite apart from this, and should receive separate discussion. It may be noted that the only other system of artificially increasing the stability of ships which, so far as we know, has received extended practical attention, is that of Frahm's anti-rolling tanks. This system has, of course, already been considerably adopted both for war and for merchant vessels. Thus, all German dreadnought battleships, and battle cruisers, for which reliable data are available, are so fitted. On the *Aquitania, Vaterland,* and *Imperator,* to mention but three merchant vessels, similar tanks are to be found. Clearly, then, opinion is decidedly in favor of artificially increasing the stability of vessels, both for war and for other purposes. Why it should be so is evident, and need scarcely again be discussed. The arguments already heard in favor of the anti-rolling tank system apply with equal force to the gyroscopic system. We need not repeat them here, but will rather conclude our present discussion by dwelling briefly on the relative merits of the two systems. Under this heading we may note the statement which has been made that, whereas a pound of water in an anti-rolling tank is in its stabilizing effect a pound and little more, the value of a pound in the weight of a gyroscopic installation is multiplied many times. This, let us say, is a very misleading statement. In the case of the *Imperator,* the displacement of which is 57,000 tons, the weight of water in the anti-rolling tanks is 490 tons, or 0.86 per cent of the displacement. There is very little other weight than this involved in the device, so that we need not expect a great saving in weight, even if we get any, by adopting gyroscopes instead of anti-rolling tanks. On the other hand, the gyroscopic system absorbs power, and represents a considerable additional amount of machinery, very delicate in parts, to install and keep in order. Against this undoubted disadvantage we must put what may be called the flexibility of the gyroscopic system. We can by this control the anti-rolling forces, whereas, under the tank system, the control is limited by the design. To show the value of this flexibility, the gyroscopic stabilizer can be brought into action or shut off at will, whereas the control of the water in anti-rolling tanks is dead, except when the vessel is rolling. Thus, in a calm sea a gyroscopically stabilized vessel can be artificially heeled to port or starboard simply by the action of her gyroscopes. This possibility is a feature of the Sperry system—it is not inherent in the Schlick arrangement—and may be at times of considerable service. As we record elsewhere, it has already been made use of in order to "wriggle" a stranded vessel off a bank, and is being contemplated in its bearing upon the design of ice-breakers. It might also conceivably be made use of to correct a comparatively small accidental list caused, say, by the

flooding of a wing compartment. This might prove of value in the case of warships in action, while in the case of merchant vessels it might make all the difference between being able to launch the boats from both sides of a sinking vessel, and a repetition of the *Titanic* disaster. Into the question of how far gyroscopic stabilizers affect the steering of ships we cannot enter further than to say that in this respect the Schlick system seems to be as free from exerting an effect as are anti-rolling tanks. As regards the Sperry system, we believe there is an effect, but it is probably small enough to be insignificant.—*The Engineer*, 25/8.

SUBMARINES

THE GERMAN MERCHANT SUBMARINE "DEUTSCHLAND."—The following description of the *Deutschland* appeared in print after the July-August issue of the PROCEEDINGS had gone to press:

The hull proper consists of an internal, cigar-shaped, cylindrical structure, which extends from stem to stern, and in its largest diameter measures



PLAN AND SECTIONAL VIEWS SHOWING INTERIOR SUBDIVISION OF BOAT

about 20 feet. Enclosing this hull is a lighter false hull, which is perforated, to permit the entrance and exit of the sea water, and is so shaped as to give the submarine a fairly good ship model for driving at high speed on the surface and at a much lesser speed submerged. The upper portion of the false hull does not present such a flat deck-like appearance as is noticeable in the naval U-boats. In fact, the whole modeling of the *Deutschland*, as compared with the naval boats, suggests that she has been fulled out somewhat, with a view to obtaining the necessary displacement for cargo carrying.

The interior cylindrical hull is divided by four transverse bulkheads into five separate water-tight compartments. Compartment No. 1, at the bow, contains the anchor cables and electric winches for handling the anchor; also general ship stores, and a certain amount of cargo. Compartment No. 2 is given up entirely to cargo. Compartment No. 3, which is considerably larger than any of the others, contains the living quarters of the officers and crew. At the after end of this compartment, and communicating with it, is the conning tower. Compartment No. 4 is given up entirely to cargo. Compartment No. 5 contains the propelling machinery, consisting of two heavy oil engines and two electric motors. The storage batteries are carried in the bottom of the boat, below the living compartment. For purposes of communication, a gangway, 2 feet 6 inches wide by 6 feet high, is built through each cargo compartment, thus rendering it possible for the crew to pass entirely from one end of the boat to the other.

The length of the *Deutschland* is about 315 feet; beam 30 feet, and draft 17 feet. For surface propulsion and for charging the batteries, the boat carries two 4-cylinder, Diesel, heavy-oil motors of about 600 horse-power each. The speed at the surface is from 12 to 13 knots; and submerged, it is 7 knots. At the surface the displacement of the boat is about 2000 tons, and she has a cargo capacity of about 700 tons.

The freeboard to the main deck, which runs the full length of the boat, but is only about 5½ feet wide, is about 6 feet, and the cockpit at the top of the conning tower is about 15 feet above the water. This cockpit, by the way, is suggestive of the protection afforded a chauffeur in an automobile, there being a shield in front of the quartermaster, so shaped as to throw the wind and spray upwards and clear of his face.

Two periscopes are provided; one at the forward end of the conning tower, and the other, of larger diameter, being forward and on the starboard of the conning tower. An interesting feature is the two folding, steel, wireless masts, about 50 feet in height, both of which fold aft into pockets built in the deck of the ship. The forward one of these masts carries a crowsnest for the lookout.—*Scientific American, 22/7.*

The *Deutschland* sailed from the Virginia capes on August 2, and her safe arrival at a German port has been reported.

THE NEFF SYSTEM OF SUBMARINE PROPULSION.—A feature of the naval program that is attracting much attention is the appropriation of $250,000 for a submarine equipped with the "Neff system of submarine propulsion."

It is generally known that submarine-boats have two different power units—the internal-combustion or heavy-oil engines for surface cruising and the electric-storage battery and motor equipment for submerged navigation. As the space in a submarine is necessarily very limited, each of these units of power encroach one on the other, resulting in a compromise in space and weight occupied by each, much to the detriment and loss of efficiency in both systems. In addition, the storage batteries have proven very dangerous, inefficient, and expensive; and the unanimous opinion of submarine builders and experts is that wherever you can do away with the storage-battery equipment, you add greatly to the safety, efficiency, reliability, economy of operation, and durability of submarines.

With such improvements in view the Neff system of submarine propulsion was evolved with the idea of developing a single or unit power and propelling plant for use on all types of submarines for both surface and submerged navigation.

This system is based upon the experimental work of the L. A. Submarine Boat Co., Long Beach, Cal., which company constructed a 75-foot model for trial purposes; and the complete system is the result of uniting a number of improvements with the original features of this experimental boat in an endeavor to produce a successful flexible unit propelling plant suitable for naval purposes.

Upon completion of this boat in the summer of 1913 Secretary Daniels appointed a trial board to conduct tests and report upon its operation, practical advantages, and adaptability for service requirements. The character of success attained by this experimental boat is indicated by the following paragraphs from the trial board's report:

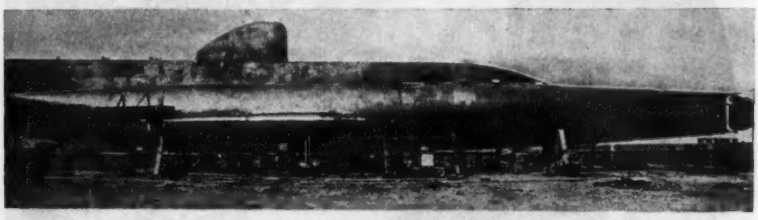
"As a result of the runs made the board considers that the ventilation of the oil engines, while submerged, both at rest and under way, was satisfactorily demonstrated. The ventilation of the boat under all conditions was found to be excellent. The action of the propellers as located on either side near the bow was shown to improve control of boat, and this will no doubt lessen the tendency of the boat to dive at higher speeds. It was noted that during the run very little manipulation of the diving rudder was necessary to maintain control of the boat, and, further, when the boat was

trimmed by the head the action of the propellers while going ahead overcame the trim and brought her up by the head to a marked degree.

"The board believes that the method of propulsion employed, including the location of the propellers, is capable of producing much higher speeds than has been heretofore practicable with other types of submarines, especially under submerged conditions.

"The distinctive features of this type of submarine are the elimination of the storage battery for propulsion, the location of propellers forward, and the improved ventilation. In the experimental boat all these features were satisfactorily demonstrated, but otherwise the boat is in an experimental state and not suited at present for naval purposes."

The builders of this vessel did not design it for naval purposes, but simply to demonstrate the special features of propulsion, as it contained no provision for the quartering of a crew or their subsistence, no torpedo tubes or other armament, and no facilities for extended cruising. Nevertheless, it was the first successful attempt to provide the much desired unit or single power plant for submarines, and with the improvements that have been made, coupled with the assistance of experienced engineers and builders, it is not unreasonable to expect practical success in the ultimate development of this idea.

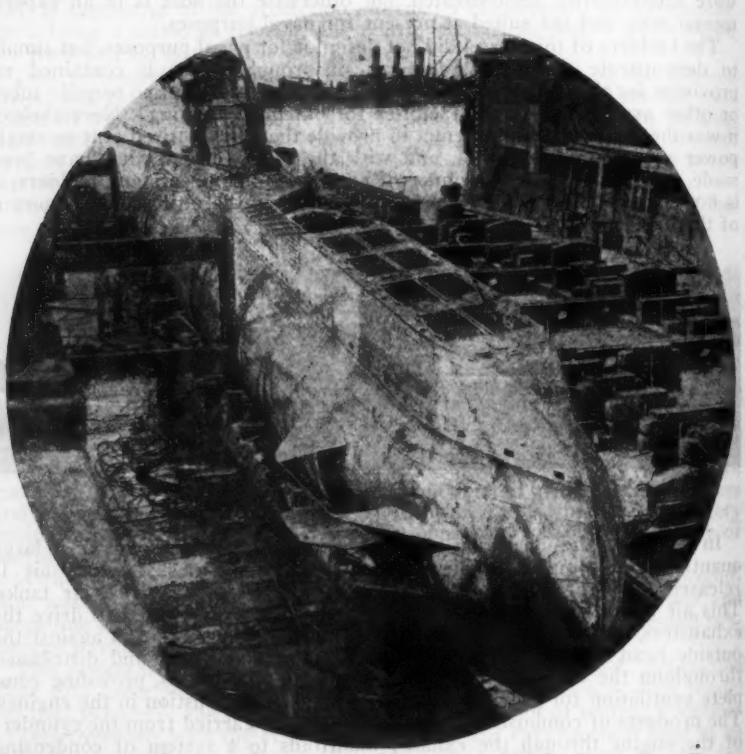


THE L. A. SUBMARINE-BOAT IN DRY DOCK

In general, the operation of the system consists in carrying large quantities of compressed air in high-pressure air flasks, which air is released through reducing valves to the low-pressure service air tanks. This air in turn is superheated, and the stored energy is used to drive the exhausters, which pump the products of combustion overboard against the outside head of water. The air is then filtered, muffled, and distributed throughout the vessel and to the engines by special means, providing complete ventilation for the crew and air to support combustion in the engines. The products of combustion or exhaust gases are carried from the cylinders of the engine through the exhaust manifolds to a system of condensing tubes outside of the hull, where the expanded gases are cooled and condensed. These products are then drawn inboard by the mechanical exhausters and are next pumped overboard through special devices for breaking up and absorbing the remaining bubbles of exhaust gases.

Every unit that goes to make up the propelling plant has been successful, and no objections have been made to the mechanics of the system. The air compressors are the same as are used on board battleships and destroyers; the air flasks are standard and the same as are now used in the service, which is also true of the fittings and auxiliary equipment. The exhausters are practical machines, and use is made of any successful engine suitable for submarines. Practically few changes are made in the interior of the boat; the hull and operating devices are the same, and, as stated, it is a flexible plant for use on all types of submarines.—*Army and Navy Register*, 2/9.

GERMAN SUBMARINE MINE LAYER "UC-5."—This boat when captured by the British had five officers and 13 men aboard, who were also taken prisoners. According to one of the seamen she made, prior to her capture, 19 trips from her base in Germany to the British coast, and laid more than 200 mines in routes frequented by merchant vessels. She was on her twentieth trip when she was captured by the British patrol boat. The German sailors said that when the submarine was sighted and chased by a patrol boat the crew tried to get rid of her remaining mines, but had not



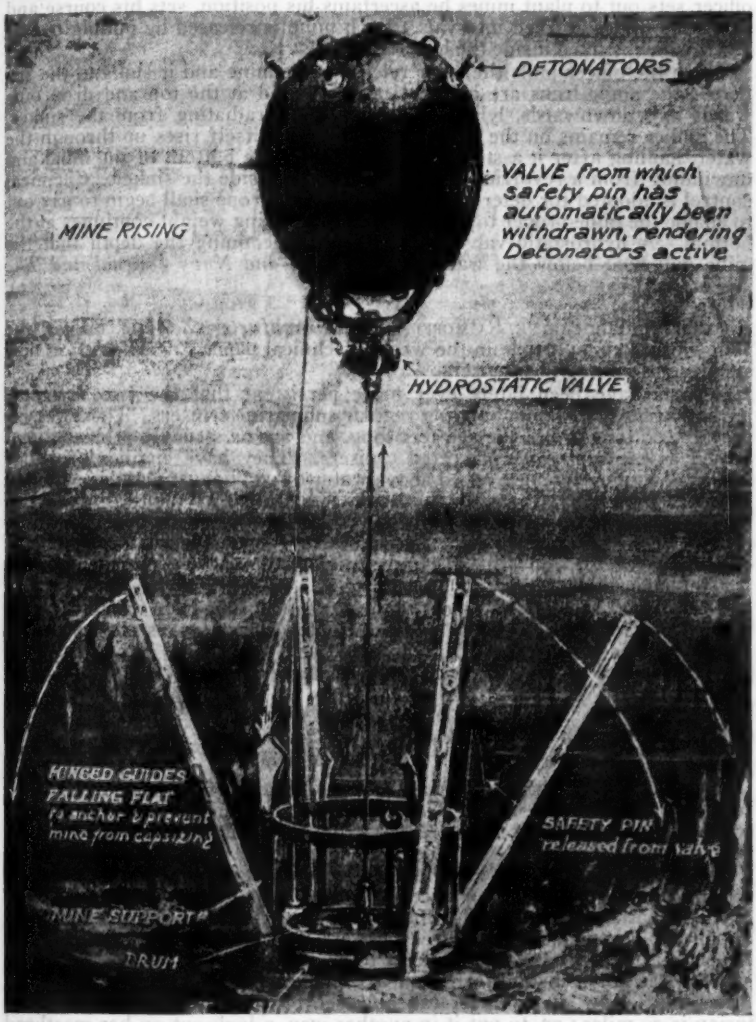
THE CAPTURED GERMAN SUBMARINE MINELAYER "U C-5" IN DRY DOCK, SHOWING THE COMPARTMENTS IN WHICH THE MINES WERE CARRIED

(From *N. Y. Times*, August 13)

sufficient time. Seeing that capture was inevitable, the officers ordered the abandonment of the ship, destroyed the log and other records, and virtually demolished the six-cylinder Diesel engine of approximately 250 horse-power.—*Army and Navy Journal*, 29/7.

DESCRIPTION OF "UC-5."—"The submarine is constructed with a rounded hull made in four sections. These may be conveyed separately by land or water, and they are bolted together at the place of assemblage; in the case under consideration that place being, perhaps, Zeebruge. On the top of the hull is built a light superstructure of thin plating, to make a level deck, its

outline curving like the curving of waves. Conning tower, periscope and wireless mast rise amidships. This particular submarine is of a small type, fitted solely for mine laying. She is 110 feet long, beam about 10 feet


DETONATORS
VALVE from which safety pin has automatically been withdrawn, rendering Detonators active
MINE RISING
HYDROSTATIC VALVE
HINGED GUIDES FALLING FLAT to anchor & prevent mine from capsizing
SAFETY PIN released from valve
MINE SUPPORT
DRUM

MINE AND ANCHOR
(From *N. Y. Herald*)

6 inches, draft when awash about 11 feet. Her speed is probably not more than 5 knots."

The whole of the hull of the submarine forward of the conning tower is a mine-carrying case. Countersunk in the deck is a row of six gratings. Beneath each grating a slanting steel shoot (like a coal shoot) runs from

top to bottom of the vessel. The steel tube of the shoot is fitted with flanged runners, on which slide the four steel stays holding the mine. Each shoot contains two mines, one above the other. When the submarine officer sets out to plant mines he ascertains his position, sets his course and drops his mines at fixed intervals. Each mine is released by pulling over a lever, which is fixed inside the hull, aft.

When the officer pulls the lever releasing the mine and it sinks to the sea floor "the angle-irons are automatically released at the top and drop outwards and downwards, lying on the sea floor, radiating from the sinker. The sinker remains on the bottom, and the mine itself rises up through the water, hauling after it a steel wire, attached to the bottom of the mine and unwinding from a revolving drum which turns inside the sinker. Chemical control is adopted for determining when the wire rope shall begin to pay out to enable the mine proper to rise while the anchoring weight continues at the bottom. A hydrostatic valve is fitted for determining the depth that the mine will float below the water level.—*Army and Navy Journal and The Engineer.*

5000-TON SUBMARINE RUMORED.—The *Frankfurter Zeitung* quotes the following from an article in the weekly technical paper *Prometheus* on new submarines and diving cruisers:

Reports have been lately ever more persistent that the two foremost naval powers have begun building regular submarine cruisers. These vessels are of 5000 tons gross, are 400 feet long, and are as strongly protected and armed as medium-sized protected cruisers. They have engines of 18,000 horse-power developing a speed above water of 26 knots and under water of 16 knots. Their effective radius is from 18,000 to 20,000 nautical miles, and they are capable of traveling from the Baltic to Japan without replenishing their fuel. They carry 30 torpedo tubes and two reserve torpedoes for each tube (90 torpedoes in all) and several light and medium quick-firers for defence against aircraft.

The journal says: "The most terrible weapon, however, which the submarine cruiser will have , in addition to the torpedoes, is the apparatus already introduced with such great success in submarines for laying submerged contact mines, of which each of these strange vessels will carry from 125 to 150."—*London Times, 22/7.*

AERONAUTICS

VALUE OF SEAPLANES AS SCOUTS.—Lord Montagu of Beaulieu is reported to have said in his speech at Brockenhurst last Saturday that "an airship was the equal of at least three cruisers from the scouting point of view, and even more destroyers. At 10,000 feet, providing visibility was good, a Zeppelin could see 80 or 90 miles, while the range from the foremast of a cruiser would probably not exceed 12 or 15." It does not need an expert in mathematics to realize that, if Lord Montagu's figures are at all correct, an airship is equal, not to three cruisers, but to something like 33. A Zeppelin at 10,000 feet, can, or ought to be able to, under favorable circumstances, see for a distance of about 90 miles not merely in one, but in all directions. Now, if a cruiser can only see for 15 miles her total area of vision is 30 miles; or, to put it in another way, a look-out on her masthead would have the view of a circle the diameter of which would be 30 miles. Consequently it would need three cruisers, spread to the extreme limit of vision, to equal the radius of the airship's vision *in one direction only.* That is to say, if the cruisers were spread to the north they could see nothing of what was happening to the south, east or west, and so on. It is, of course, a simple sum to find out what exact number of cruisers, with a radius of vision of 15 miles, would be needed to keep watch at any given time upon the same area of water as could be seen from a Zeppelin with a

radius of 90 miles, but it is one the working out of which brings home to anybody the tremendous advantage conferred by such air scouts.—*Army and Navy Gazette, 22/7.*

TABLE SHOWING PROBABLE ZEPPELIN LOSSES FROM AUGUST 1, 1914, TO SEPTEMBER 15, 1916

No.	Name	Place	Date	Cause of Loss
1	Z-8*	Badonvillers, France	22- 8-1914	Destroyed by French gunners. Part of crew lost.
2	Z-5*	Mlava, Russia	29- 8-1914	Destroyed by Russian gunners. Crew lost.
3	?*	Seradz, Russia	6- 9-1914	Captured, while at anchor, by a cavalry patrol. Crew of 30, prisoners.
4	?	Düsseldorf, Germany	9-10-1914	Destroyed in shed by British aviators.
5	LZ-31*	Friedrichshafen, Germany	21-11-1914	Destroyed in shed by British aviators.
6	?	North Sea	23- 1-1915	Foundered during a storm.
7	L-3*	Esbjerg, Denmark	17- 2-1915	Stranded, having run out of fuel, and broke up. Crew of 16 interned.
8	L-9*	Boulogne, France	5- 3-1915	Foundered during a storm, after having raided Calais. Crew lost.
9	L-8*	Tirlemont, Belgium	4- 3-1915	Damaged by British aviator; wrecked on landing. 21 of crew killed.
10	?	Thielt, Belgium	12- 4-1915	Damaged, over Béthune, by French gunners; wrecked on landing.
11	?*	North Sea	26- 5-1915	Broke away without crew; foundered off Heligoland.
12	LZ-37*	Evere, Belgium	7- 6-1915	Destroyed in shed by British aviators.
13	LZ-38*	Ghent, Belgium	7- 6-1915	Destroyed in mid-air by British aviators; crew lost.
14	L-?*	Ostende, Belgium	10- 8-1915	Raided London. Destroyed, upon her return by British aviators.
15	?*	Vilna, Russia	24- 8-1915	Shot down by Russian gunners; crew of 10 made prisoners.
16	?*	Saint-Hubert, Belgium	13-10-1915	Destroyed by exploding in mid-air.
17	?	Maubeuge, France	16-10-1915	Stranded on a chimney and broke up.
18	?	Grodno, Russia	5-11-1915	Destroyed by the storm on landing.
19	L-18*	Tondern, Germany	17-11-1915	Wrecked in shed through an accidental (explosion).
20	Z-28	Hamburg, Germany	17-11-1915	Wrecked by the storm.
21	L-22*	Tondern, Germany	1-12-1916	Destroyed in shed through accidental explosion of a bomb.
22	?*	Kalkun, Russia	5-12-1916	Shot down by Russian gunners. Crew lost.
23	?*	Mainvault, Belgium	30- 1-1916	Raided Paris. Damaged by French aviator; wrecked on landing.
24	L-19*	North Sea	21- 2-1916	Raided England. Probably run out of fuel; foundered. Crew lost.
25	LZ-77*	Révigny, France	21- 2-1916	Shot down by French motor guns; destroyed in fall. Crew of 15 killed.
26	L-15*	Kentish Knock, England	1- 4-1916	Shot down by British gunners; crew of 18 surrendered. Vessel sank.
27	L-20*	Stavanger, Norway	3- 5-1916	Raided Scotland. Stranded, having run out of fuel and drifted with the wind. Blown up by crew; 3 killed, 16 interned.
28	?*	Off Schleswig coast	4- 5-1916	Shot down by H. M. S. *Galatea* and *Phaeton*.
29	?*	Salonika	5- 5-1916	Shot down by Allied Warships.
30	?*	England	2- 9-1916	Shot down by aeroplane during raid on London.

*Destruction authenticated.

There has been some discussion in Parliament during the past month concerning the number of Zeppelins destroyed by the Allies. Major Baird, speaking for the Aerial Board of Great Britain in the House of Commons on August 22, said there had been 34 raids on England resulting in the death of 334 civilians and 50 military men, and that the Allies had "accounted for" 35 Zeppelins since the war began—Berlin despatches re-

ferring to this speech state that only about one-fourth of this many Zeppelins have been lost.

FLIES 661 MILES UNDER NINE HOURS.—Newport News, Va., Friday.—Carrying one passenger and flying one of the latest types of Curtiss twin military biplanes, a combination land and water machine, Victor Carlstrom to-day set a new world record when he covered a distance of 641 miles in eight hours and forty minutes. This is the record for distance covered in one day, and unless the mark is bettered Mr. Carlstrom will win the Curtiss trophy for this year. The trophy was won last year with a flight of 500 miles.

The flight was made over a course from this city to Fisherman Island, near Cape Charles, 51 miles for the round trip. Mr. Carlstrom started out to make 700 miles in 10 hours, but carburetor trouble on one occasion and two stops to replenish his gasolene supply consumed an hour and 20 minutes.

One hundred and forty gallons of gasolene were used on the trip, which amount is declared to be small, as the machine is equipped with two engines of 110 horse-power each. Mr. Carlstrom at times reached a speed of about 90 miles an hour.—*New York Herald.*

LESSONS OF THE WAR

USE OF ZEPPELINS AND SEAPLANES IN BATTLE.—To descend from the conjectural to the real, it is not yet clear to what advantage the Germans used their Zeppelins during the action off Jutland. Apparently, none were present during the first phase of the battle, but, as Sir David Beatty says, it is possible that some were in use between five and six. That greater use was not made of the airships may well have been due to the unsuitable atmospheric conditions, which the experiences of the seaplane from the *Engadine* show to have been anything but propitious. Owing to clouds, it was necessary for this machine to fly very low. In order to identify four enemy light cruisers, she had to fly at a height of only 900 feet, within 3000 yards of them, the ships opening fire on her with every gun that would bear. Incidentally, this would seem to show that in certain circumstances a seaplane may be of more utility than a Zeppelin, because if a ship of that type came so near to the enemy she would certainly be courting destruction. On the other hand, there must always be the difficulty of picking up the seaplane after it has done its work—a matter upon which the despatches are naturally silent. If the battle serves still further to stimulate our aircraft policy it will have done good, for on another occasion the conditions may be such that these vessels, especially airships, will play a larger part in the encounter. The use of aircraft on either side this time was restricted to reconnaissance work, as was anticipated. Sir David Beatty, referring to the fact that the German fleet began to haul off before the main body of the British fleet hove in sight, says that "possibly Zeppelins were present also" to give information of the approach of Admiral Jellicoe. The Germans certainly knew what the British position was on the morning of June 1, as the commander-in-chief states that "at 4 a. m. the fleet engaged a Zeppelin for about five minutes, during which time she had ample opportunity to note and subsequently report the position and course of the British fleet."—*London Times.*

GREAT DEFENSIVE STRENGTH OF BATTLESHIPS.—A careful reading of the many accounts, official and private, which have been published, describing the battle of Jutland, leaves a strong impression of the wonderful defensive qualities of the modern battleship. Because of the misty weather, battleships came under fire at ranges as short as 8000 and even 5000 yards, when salvo after salvo was landed upon the opposing ships. There is a saying among our naval men (or rather there was before this great fight) that the

first salvo to land upon the enemy would practically decide the fight—so demoralizing would be the burst of a few high explosive shells within the ship. Nevertheless, Admiral Jellicoe speaks of one of his ships as landing seven successive salvos upon a battleship of the enemy, which apparently survived the ordeal, since the report speaks of her as having "turned away," probably to get out of range; and there is the case of the *Warspite*, which, with broken steering gear, became the target for six battleships of the enemy and nevertheless effected repairs and rejoined the British fleet. Then again, the *Marlborough*, although struck by a torpedo, continued in the fight and landed her salvos with effect.—*Scientific American*, 29/7.

SURGICAL DRESSINGS OBSOLETE.—From every great action the doctors who handle the wounded learn important lessons. The lesson of the need of trench helmets is an example, and so is the lesson of the need of anti-tetanic serum. It is now clear that the battle of Jutland Bank has also taught its lessons.

One hundred and ten wounded men were taken into the Royal Naval Hospital at South Queensferry and the doctors in charge of them have contributed to the *Lancet* an account of their wounds. They are classified as follows: Shell wounds, 62; burns, 42; suffering from the effect of fumes, 4; and from severe shock, 2. The small number of cases of shock is remarkable in view of the tremendous cannonade which was a feature of the battle, but more remarkable still is the fact that almost all the wounds were septic, though less than 48 hours had elapsed since the injuries were received. It was the custom earlier in the war to blame the soil of France for the fearfully septic wounds inflicted there. Clearly we shall require to revise this opinion, for it is notorious that bacterial life scarcely exists on the sea. Evidently all the elements necessary to the making of a very septic wound are present on clothing and skin.

There were many broken bones, and all the fractures were compound. Amputation was often necessary. The chief concern of the surgeon was the prevention of sepsis, that is, of blood poisoning. Two methods were adopted, representing what may be called the two great schools which have sprung up during the war—the antiseptic school and the salt solution school. The former is the school of Lister, the latter the school of Sir Almroth Wright. It seems clear that, broadly speaking, Sir Almroth Wright's methods gave the most generally favorable results. "When once sepsis has gained a footing continuous saline irrigation seems to meet the requirements, does away with painful dressings, and is particularly non-irritating to the injured and exposed periosteum (sheath of the bone), which is so easily destroyed by the application of antiseptics." This independent testimony from the navy to the great work of Colonel Sir Almroth Wright is of deep interest.

The greatest of these changes finds expression in certain allusions to the advantages to be gained by avoiding "painful dressings" of wounds. The battle of Jutland Bank thus emphasizes a truth that has been plain to many doctors since Sir Almroth Wright began his work on the healing of wounds—namely, that the surgical dressing—lint bandage and wool—is out-of-date. It has been found out. It is a barrier to the free discharge of lymph which cleans the wound; it forms a breeding ground of germs; it sticks to the wound and dries on, and its removal is attended by great pain and often danger from bleeding; finally, it hurts the wound and is apt to destroy delicate healing processes going on in it; and it is costly. A surgeon of great experience stated in the writer's hearing a few days ago: "I believe we shall outlive the dressing after all. I used to think that idea was Utopian, but the war has opened men's eyes."

The method of "irrigation" by saline solutions as suggested by Sir Almroth Wright is beautifully devised to afford every possible help to the healing wound. Some terrible cases of cordite burns were in the hospital at Queensferry, but recovered well. In speaking of these burns and their

treatment the authors say: "We on no account apply a dressing." These views do not, of course, apply to field dressings, which are protective, but to hospital treatment.—*London Times,* 10/7.

MERCHANT MARINE

SHIPS BUILDING.—The press reports that on July 1 there were building in Great Britain 440 merchant ships, of 1,500,000 gross tonnage, while on the same date there were building or on order in the United States 385 ships of 1,225,784 gross tonnage.

ITALY ADOPTS SHIP SUBSIDY.—Rome, August 8. The Ministry to-day adopted the following measures designed to effect the building up of the national merchant marine and relieve shippers from the burdens of high freight rates:

Ships bought abroad by Italian citizens or companies within the next two years will be exempt from taxation for a period of three years; ships built in Italy during the same period will be exempt from taxation for four years, the materials for such ships will be permitted to enter free of duty and subsidies will be paid of $16 a ton on the hull and $20 on machinery.

Ships built under the provisions of the act will be liable, however, to requisition by the government for one year, and such ships must also remain under Italian registration for five years.—*N. Y. Times,* 10/8.

MERCHANT SHIPS SUNK DURING THE WAR.—The *New York Times* quotes the following tables compiled by a firm of Dutch Marine Underwriters. Ships of more than 8000 tons which have been destroyed are:

Name and Nationality	Tonnage
Alcantara, British	15,831
Ancona, Italian	8,210
Arabic, British	15,801
Armenia, British	8,825
Cap Trafalgar, German	18,710
Glengyle, British	9,395
Hesperian, British	9,599
K. Wilhelm der Grosse, German	13,952
Koenigin Emma, Holland	9,181
La Correntina, British	8,529
La Provence, French	13,753
Lusitania, British	30,396
Maloja, British	12,431
Minneapolis, British	13,543
Noordam, Dutch	12,531
Norseman, British	9,542
Oceanic, British	17,274
Royal Edward, British	11,117
Ryndam, Dutch	12,527
Tubantia, Dutch	13,911
Van Dyck, British	10,328
Wayfarer, British	9,599
Yasaka Maru, Japanese	10,932

Of the above ships the Dutch liners *Noordam* and *Ryndam,* both of which were in the New York-Rotterdam service, struck mines in the North Sea. In both instances the crews managed to get the ships into port, where they were repaired. The cause of the sinking of the Dutch liner *Tubantia* is given in the record as due to a torpedo attack, a charge that has been repeatedly denied by the Berlin Government.

The American vessels destroyed in the course of the war are given as follows:

Name and Date	Tonnage
Carib, February 23, 1915	2807
Evelyn, February 19, 1915	1963
Greenbrier, March 4, 1915	3331
Leelanaw, July 25, 1915	1924
Vincent, September 20, 1915	1904
W. P. Frye, January 28, 1915	3374

The recapitulation of total losses by countries is as follows:

BELLIGERENTS

Country	No. Ships	Tonnage
Great Britain	684	1,419,580
Germany	69	177,530
France	67	162,417
Russia	35	42,349
Italy	24	49,197
Belgium	12	22,931
Japan	3	19,267
Austria-Hungary	6	10,824
Turkey	12	11,381
Portugal	1	620
Total	913	1,916,096

Of the above ships only 36 remained afloat long enough to reach port, where they were repaired. All others were sunk or destroyed.

The toll of neutral ships, lost as a result of the war, is as follows:

Country	No. Ships	Tonnage
Holland	43	131,333
Norway	90	131,488
Sweden	45	49,999
Denmark	33	35,605
Greece	10	17,477
United States	6	14,583
Spain	4	8,606
Rumania	1	285
Persia	1	758
Total	233	390,134

Of the neutral vessels 15 were towed into port and repaired, the total tonnage of the rescued ships being 64,575.

BRITISH SEIZURES OF HOSTILE MERCHANTMEN.—London, July 31. Lord Robert Cecil, Minister of War Trade, informed the House of Commons to-day that 144 vessels flying the flag of hostile countries were seized in British ports, 12 in French ports, 30 in Russian ports and 59 in Italian ports. All the ships seized in British and Italian ports, he said, were now being employed.

A considerable number of vessels also had been captured on the high seas, the minister said, while 71 hostile steamers and 3 sailing ships were seized by Portugal. The latter will be employed when repairs have been completed. —*Baltimore Sun*, 1/8.

SAYS GERMANY HAS REPLACED ALL MERCHANT SHIPS LOST IN WAR.—Copenhagen, August 25. Germany is ready now for the competition on the sea which will take place after the war, declares Philip Heineken, Director of the North German Lloyd Steamship Line, in an interview in the *Politiken* to-day.

Every ship destroyed during the war had been replaced, he said, and the North German Lloyd Line had built four new passenger steamers named the *Zeppelin, Hindenburg, Kolumbus,* and *Muenchen,* respectively. The company, he added, also intended to build a large number of 4000-ton steamers of a uniform type in order when the war is over to enable the company to send out a swarm of steamers with great rapidity.

The submarines *Deutschland* and *Bremen,* said Herr Heineken, would not be used after the war, as the cost of their operation was too great.—*N. Y. Times,* 26/8.

USEFULNESS OF SUBMARINE MERCHANTMEN.—It would be ungenerous to say anything derogatory to the initiative resourcefulness, and skill which produced the submarine merchant ship *Deutschland,* carried her through the British blockade and across the Atlantic Ocean, and landed her in an American port with safety and dispatch. There are many features about this exploit which render it unique among the annals of the sea. The *Deutschland* is the first submarine to make the westward passage; with the possible exception of a few of the latest German naval submarines, which are credited with a displacement of 2200 tons, she is the largest submarine yet constructed; she is the first submarine to be built for purely commercial purposes—for torpedoes and rapid-fire guns she has none; she is the first submarine to sail the seas under the protection of the ancient and time-honored laws of visit and search, for the observance of which on the part of German naval submarines our President labored so long, and at last, so successfully.

There can be no doubt whatsoever as to the status of the *Deutschland* as a peaceful merchant vessel; and, as such, should she be overtaken by one or more British destroyers or patrol boats when she reaches European waters, the worst that could happen would be her capture and removal to a British port, or her being sunk after her officers and crew had been taken aboard the enemy's ship.

The *Deutschland* is an abnormal vessel, built to meet the abnormal conditions of the blockade of Germany by the British fleet. Did she carry an ordinary cargo, she would be a highly interesting and sensational but very costly experiment; but her construction and operation are rendered highly profitable by the fact that there are certain commodities manufactured almost exclusively in Germany, the secrets of whose manufacture are known only in Germany, which have reached such an enormous value in this country (we are speaking now of dyestuffs and certain special chemicals) that the bringing to this country of even such small cargoes as the *Deutschland* can carry renders the enterprise an extremely profitable undertaking.

It is reported that the *Deutschland* has a cargo capacity of 700 tons. It is certain that several hundred tons of freight were carried on this first trip, the rumor has it that the boat will take back a full cargo of rubber and nickel, both of which are in the very greatest demand just now in Germany for war purposes.

The *Deutschland* and her sisters, should they escape capture, will doubtless carry full cargoes and earn very big profits for the enterprising men who are back of this venture, as long as the war shall last. With the coming of peace, of course, their work will be ended; for a vessel of this type cannot possibly compete as a freight carrier with the average, cheaply built tramp of large cargo capacity. In peace times the submerging ability of the *Deutschland* fleet will be useless, and, except in the very roughest weather, will never be exercised. It would be possible, of course, to remove the

motors and the heavy electrical storage batteries. This would add greatly to the cargo capacity and, under these conditions, it is possible that the boats might find a field for useful service in the coastal and inland water trade.—*Scientific American*, 22/7.

MISCELLANEOUS

SHIPS' DRAFTS IN PANAMA CANAL.—In order to calculate the draft of a ship in the fresh water section of the Panama Canal, through Gatun Lake, Gaillard Cut, and Miraflores Lake, from her draft in sea water, the marine division forces have adopted as a working formula:

Add one-fourth of an inch for each foot of draft in sea water.

Accurate computation in this matter would require consideration of the displacement curve of the ship and the density of the water, as determined by hydrometer tests; but for practical purposes the simple formula is very satisfactory.

Where the water plane area is approximately constant throughout the draft, the draft of a ship in fresh water is about three per cent greater than in salt water. This is based on the ratio of the volume of water weighing one ton. A ton of clean fresh water contains approximately 36 cubic feet; a ton of clear sea water in the open ocean, approximately 35 cubic feet. The depth to which a vessel will sink, displacing water, till it reaches equilibrium will vary as the quantity of water required to make a ton. Accordingly, as 36 is greater by 2.857 per cent than 35, the draft of a rectangular parallelepiped in fresh water is exactly 2.857 per cent greater than in salt water. One-fourth of an inch is slightly over two per cent of a foot; but on account of the sediment in the water in the Cut, due to the dredging operations, and also on account of the fact that the water plane areas are smaller near the keel than near the surface, the local formula gives more nearly accurate results with respect to passage through the Cut than the usual forms of rough calculation.—*Shipping Illustrated*, 12/8.

CAPE COD CANAL FACTS.—Merchant shipping as well as pleasure craft, is increasingly finding that the new route eastward through the Cape Cod Canal is a great convenience not only because it is shorter but much safer through avoiding the fogs and storms of the outside route. The length of this canal proper is 8 miles and it has a depth at mean low water of 25 feet. The length of the breakwater in Cape Cod Bay is 3000 feet, clearance between fenders of all bridges is 140 feet, clearance under Sagamore Bridge at extreme high water is 30 feet; under Bourne Bridge the same; and under Buzzard's Bay railroad bridge, 2½ feet. The bottom width of the Cape Cod Bay approach is 300 feet and the bottom width for 1500 feet at the easterly end of the canal is 300 feet, for the next 5500 feet, 200 feet, to the railroad bridge (about six miles), 100 feet and to the railroad bridge westerly for 2000 feet, 150 feet. White electric lights on poles opposite one another are placed at high water mark, every 500 feet through the canal. There are mooring piles at each end of the canal and at either side of the three bridges.—*Marine Journal*, 29/7.

PANAMA CANAL TRAFFIC.—During the fiscal year ended June 30 last, 787 vessels passed through the Panama Canal, having an aggregate net tonnage according to canal measurements of 2,479,761 tons. The total quantity of cargo carried on these ships was 3,140,046 and the tolls collected $2,399,830.42. During that period the canal was closed from about the middle of September until the middle of April, leaving only five months during which the waterway was in normal operation. The total amount expended on operation and maintenance of the canal was $6,999,750.15, leaving a deficit of $4,599,919.73. The largest item in the expense account was for dredging, the total sum for that being $3,560,616.04, all but $47,000

of which was expended in clearing the Gaillard Cut where the big slide occurred.

Aside from the vast expense entailed the closing of the canal for the seven months had the disastrous effect of diverting a large amount of coast to coast shipping to the ocean trade, due to the high freight rates offering, so that when the canal was again opened few of these vessels returned to their previous routes. On the other hand, however, many vessels which had been using the Suez Canal were, by the European war, forced to shift their trade routes and pass through the Panama Canal, which has to some extent compensated for the loss of the coastwise traffic.

Another feature of this situation is that the water-lines were brought to a realization that the low rates that have been established to attract cargoes from the transcontinental rail lines were ruinous and made the traffic not nearly so remunerative, which was all the more reason for placing the vessels in the overseas traffic when the opportunity came and leaving them there even after the canal was again reopened, until this condition might adjust itself.—*Marine Journal*, 2/9.

PEARL HARBOR DRY DOCK.—Supported by huge chains to a pontoon of its own size, the first concrete section of the Pearl Harbor naval dry dock was successfully floated into position at the land end of the dry dock slip yesterday and is to-day being inspected. It will probably not be released from the pontoon which is floating it and sunk in place until to-morrow or Monday.

Under perfect weather conditions, with hardly any breeze and the water calm, the huge block, weighing more than 20,000 tons, was lifted from the temporary dry dock where it was formed and where it has been "curing" for a sufficient length of time. The pontoon lifted the huge mass with ease, and in a short time it was towed up the 1000-foot slip into position above its permanent resting place.

The first section is 60 by 152 feet in dimension and 15 feet from top to bottom. There will be 17 of these sections, which are to rest on piling which has already been driven and filled in with crushed rock, making a level floor of rock and piling on which the sections will lie.

After all the sections are laid a heavy concrete surfacing will be poured over their tops, so that the dry dock floor will be one solid mass of concrete for its 1000-foot length, all perfectly level and large enough to hold the longest dreadnought of the United States Navy.

The new dry dock is being built in sections out of water, where the concrete for the old one was poured under water. It is the first time in the history of American engineering that this plan has been followed, and engineers are watching its progress with keen interest.—*Army and Navy Register*, 29/7.

THE ENGLISH CHANNEL TUNNEL.—During the month the question of constructing a railway tunnel under the Straits of Dover has again been receiving prominent attention. The committee, formed of members of the House of Commons who wish to see the scheme carried out, entertained at dinner a numerous body of supporters of the idea in the members' dining room on the 28th, among the guests being numerous distinguished Frenchmen. In the speeches which followed the banquet, Monsieur Yves Guyot declared that everyone in France desired the tunnel to be driven, and that much surprise had been expressed at the fears which had been aroused with regard to it. These, said Monsieur Guyot, would be ridiculed by posterity, as would also the other objections which had been raised. He explained that Monsieur Sartiaux, working in conjunction with Sir Francis Fox, had prepared a scheme of operations which could be carried out without delay. The tunnel would be throughout at such a depth that no external explosion could affect it. Baron Emile d'Erlanger, speaking later, gave some figures as to the cost and possible earning capacity of the tunnel. The

estimated cost of construction was £16,000,000. It was calculated that of the 2,000,000 passengers who crossed the channel in both directions during the year, at least 65 per cent, or say 1,300,000, would use the tunnel, and if each were charged 10s., this would amount to an income of £650,000 a year. To this it was hoped to add £65,000 for baggage, £40,000 for postal services, and £800,000 for goods' traffic, the total estimated revenue being, therefore, £1,555,000. Running expenses were put down at £420,000 per annum, which would leave £1,135,000 as the annual net earnings on the £16,000,000, or just over 7 per cent. As evidence of the hold which the scheme has on the House of Commons, we may mention that the committee of adherents now numbers over 150.—*The Engineer*, 4/8.

CURRENT NAVAL AND PROFESSIONAL PAPERS

NOTE.—Lack of space limits the scope of these references. Upon application, members of the Institute will be supplied with fuller references to current periodicals published in both the United States and foreign countries.

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UNITED STATES

1. SCIENTIFIC AMERICAN. **July 29.**—Automobiles in the Great War, by *W. F. Bradley*. British Methods of Handling Coal, by *James Steelman*. The Determination of the Resistance of Ships, by *E. H. Riggs*. **August 5**—Some Characteristics of the Three Types of Automatic Machine Guns Used by the U. S. Army. **August 26.**—Possibilities and Conditions of Crossing the Atlantic by Airship, by *Baron Ladislas d'Orcy*. The Cruise of the Civilian Naval Volunteers. Photographing of High Velocity Phenomena, by *W. A. Hyde*. **September 2.**—American Aviators with the French Army, by *Neal Truslow*. **September 9.**—German Military Aeroplanes.

2. JOURNAL OF THE UNITED STATES ARTILLERY. **July-August.**—Organization and Tactics of Coast Artillery Gun Defence, by *Captain James A. Thomas, C. A. C.*

3. ARMY AND NAVY JOURNAL. **July 22.**—Gunnery Practice in the Navy.

4. AVIATION AND AERONAUTICAL ENGINEERING. This is a new magazine published by Gardner, Moffat Co., New York. It is well written and illustrated semi-monthly that has a special department of army and navy news. Its technical editor is A. Klemin, instructor in aeronautics at the Massachusetts Institute of Technology. In the first number—August 1—Mr. Klemin begins a series of articles on aerodynamics and aeroplane design. **August 15.**—The Steel Construction of Aeroplanes, by *Grover C. Loening*. Physiological Tests for National Guard and Naval Militia Fliers.

5. MOTORSHIP. Another new magazine, devoted to the interests of commercial motor vessels.

6. THE ENGINEERING MAGAZINE. **September.**—Mobilizing Our National Resources, by *Howard E. Coffin.* Preparing Our Industries for the Coming Test, by *E. N. Hurley.* What is Preparedness? by *H. L. Gantt.*

7. THE QUARTERLY REVIEW. **July.**—A Voyage of Discovery in Northern Germany, by *J. M. De Beaufort.* The Battle of Jutland, by *Carlyon Bellairs.*

8. CONTEMPORARY REVIEW. **July.**—Our Naval Policy and Position, by *W. H. Henderson.* The Rescue of an Army, by *S. K. Ratcliffe.* The Heligoland Mistake, by *Evans Lewin.* **August.**—Greece, by *Dr. E. J. Dillon.* The Sultan of Turkey and the Caliphate, by *Harold Temperley.* War Conditions in Austria-Hungary, by *J. M. Kennedy.*

9. JOURNAL OF THE MILITARY SERVICE INSTITUTION. **September-October.**—Military Aviation, by the *Army War College.*

GREAT BRITAIN

10. THE NINETEENTH CENTURY AND AFTER. **July.**—The German Chancellor and Peace, by *J. W. Headlam.* The War Industries of Europe, by *Professor L. Levy-Bruhl.* **August.**—The Apathy of America, by *William George FitzGerald.*

11. THE FORTNIGHTLY REVIEW. **August.**—Two Years of Aerial War, by *Claude Grahame-White* and *Harry Harper.* History of the War.

12. LAND AND WATER. **June 29.**—The Nelson Touch, by *Arthur Pollen.* **July 6.**—A Real Blockade? by *Arthur Pollen.* **July 13.**—The Jutland Despatches, by *Arthur Pollen.* **July 20.**—The Political Side, by the *Editor.* A New Situation, by *Arthur Pollen.* **August 10.**—After Two Years, by the *Editor.* Human Nature and the War, by *L. P. Jacks.* **August 24.**—How Aeroplanes Are Used in War.

13. UNITED SERVICE MAGAZINE. **July.**—The Navy and the War, by *"Admiral."* The German Coast Defences, by *Hector C. Bywater.* Sidelights on the Old Navy, by *Commander Shore, R. N.* Progress in Aeronautics, by *Major H. Bannerman-Phillips.*

14. THE ENGINEER. **August 4.**—Propellor Immersion and Efficiency.

INTERNATIONAL NOTES

1. NAVAL WAR NOTES 1691
2. DIPLOMATIC NOTES 1714

NAVAL WAR NOTES

Prepared by LIEUTENANT R. S. EDWARDS, U. S. Navy

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2. NORTH SEA AND THE CHANNEL 1703
3. BALTIC SEA 1705
4. MEDITERRANEAN SEA 1705
5. BLACK SEA 1706
6. MISCELLANEOUS 1706
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THE BATTLE OF JUTLAND

COMPARISON OF OFFICIAL GERMAN AND BRITISH ACCOUNTS OF THE BATTLE OF JUTLAND

NOTE.—The following has been compiled from Admiral Jellicoe's report and the statements of the German Admiralty, except where otherwise noted in the text. The object aimed at is to give the British and German versions of each incident of the battle in as concise form as possible. The reports referred to are published in full in the July-August issue of the PROCEEDINGS. German summer time is used in all German reports, while Greenwich time is used in Admiral Jellicoe's report. Consequently, in order to coordinate the incidents of the battle, two hours has been subtracted from the times given in the German reports. We also reproduce charts of the battle from British and German sources.—R. S. E.

MISSION

BRITISH ACCOUNT	GERMAN ACCOUNT
The Grand fleet left its base on May 30 in pursuance of a general policy of periodical sweeps of the North Sea.	High Sea fleet was cruising in the Skagerrack on May 31 for the purpose, as on earlier occasions, of offering battle to the British fleet.

FORCES

Beatty's Divisions:

Four *Lyons* (28.5-knot battle cruisers, eight 13.5-inch guns); *Indefatigable* (25-knot battle cruiser, eight 12-inch guns); *New Zealand* (25-knot battle cruiser, eight 12-inch guns).

5th Battle Squadron:

Barham, Valiant, Warspite, Malaya (25-knot battleships, eight 15-inch guns. These are *Queen Elizabeth* class, but *Queen Elizabeth* itself was apparently not present).

3d Battle Cruiser Squadron:

Invincible, Inflexible, Indomitable (26-knot battle cruisers, eight 12-inch guns).

Armored Cruiser Squadron:

Black Prince, Defence, Duke of Edinborough, Warrior (23-knot armored cruisers, 9.2 inch guns.

Battle squadrons under Jellicoe and numerous light cruisers and destroyers.

(From "Battle of Jutland," by Pollen.)

Five battle cruisers of *Derfflinger* and *Moltke* types (*Derfflinger* is a battle cruiser, probably 27 knots, eight 12-inch guns; *Moltke* is a battle cruiser, probably 28 knots, ten 11-inch guns).

Three squadrons of battleships.

Large number of small cruisers.

Several torpedo-boat flotillas.

CONTACT

Beatty was scouting to southward of the battle fleet, when, at 2.20, presence of enemy vessels was reported. Beatty changed course to SSE., the course for Horn Reef, to interpose between enemy and his base.

Light cruisers, screening in advance of Beatty, engaged enemy light cruisers at long range.

At 2.35 Beatty changed course to E., and subsequently to NE., sighting five enemy battle cruisers at 3.31.

At 3.31 Beatty formed line of bearing on course ESE. at 25 knots, slightly converging on enemy, then 23,000 yards distant.

Visibility was good, sun behind British and wind SE.

At 3.48 both forces opened fire simultaneously at 18,500 yards.

At 2.30, about 90 miles west of Hantsholm, the van unexpectedly met eight small English cruisers and 15 or 20 *N* class destroyers.

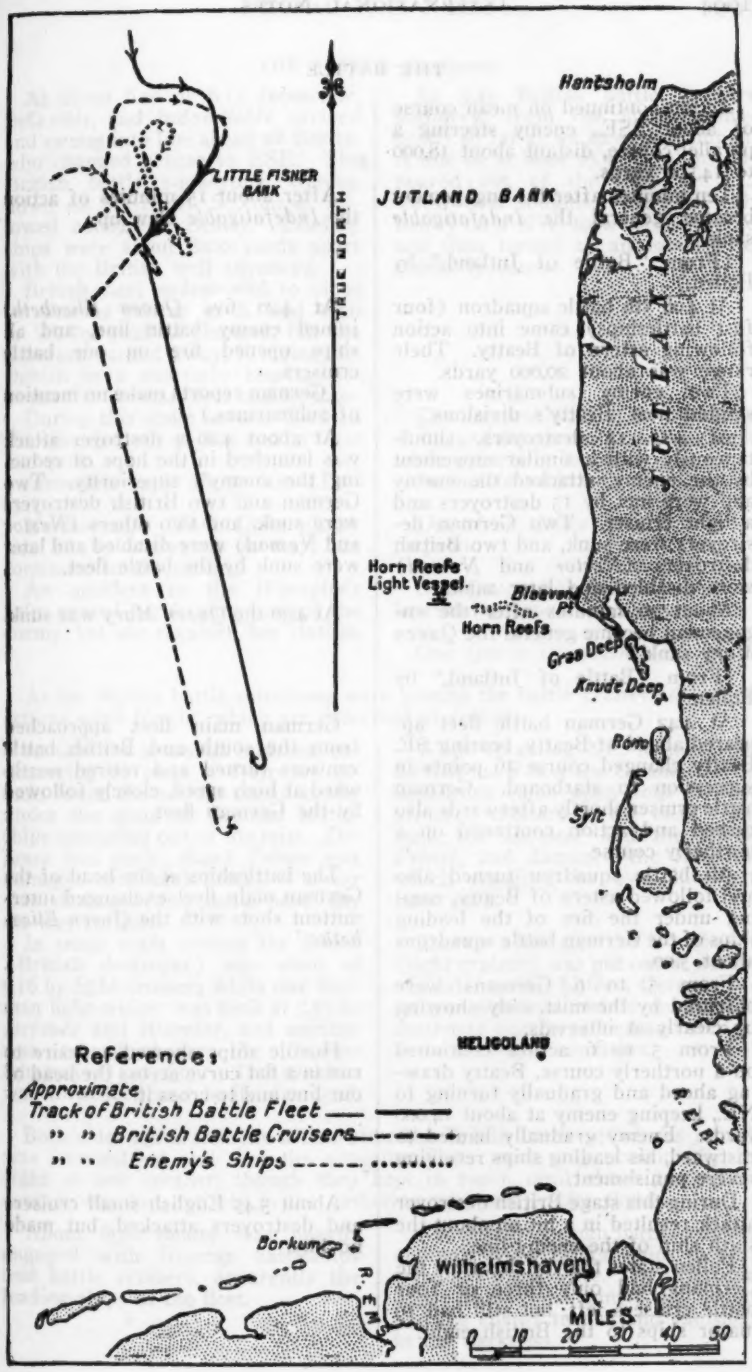
German light cruisers, followed by 1st battle cruiser division, attacked and British light cruisers withdrew northwestward.

Battle cruisers sighted six enemy battle cruisers to westward.

Enemy formed in battle line to southeastward, and German battle cruisers took same course in line ahead.

Weather was clear and sea calm; wind from NW.

At 3.49 Germans opened fire at about 13,000 meters.



PLAN OF THE BATTLE OF JUTLAND
(*London Times*, July 7)

THE BATTLE

Action continued on mean course of about SSE., enemy steering a parallel course, distant about 18,000 to 14,500 yards.

Ten minutes after the engagement became general the *Indefatigable* sank.

(From "Battle of Jutland," by Pollen.)

At 4.08 5th battle squadron (four fast battleships) came into action following astern of Beatty. Their range was about 20,000 yards.

Two enemy submarines were sighted near Beatty's divisions.

At 4.15 12 destroyers, simultaneously with a similar movement by the enemy, attacked the enemy and were met by 15 destroyers and a light cruiser. Two German destroyers were sunk, and two British destroyers (*Nestor* and *Nomad*) were disabled and later sank.

About 30 minutes after the engagement became general the *Queen Mary* sank.

(From "Battle of Jutland," by Pollen.)

At 4.42 German battle fleet appeared ahead of Beatty, bearing SE. Beatty changed course 16 points in succession to starboard. German battle cruiser shortly afterwards also turned and action continued on a northerly course.

5th battle squadron turned also and followed astern of Beatty, coming under the fire of the leading ships of the German battle squadrons about 5.00.

From 5 to 6 Germans were obscured by the mist, only showing up clearly at intervals.

From 5 to 6 action continued on a northerly course, Beatty drawing ahead and gradually turning to NE., keeping enemy at about 14,000 yards. Enemy gradually hauled to eastward, his leading ships receiving severe punishment.

During this stage British destroyer attack resulted in a hit on about the sixth ship of the enemy line.

Pollen states that by this time the Germans had only three or four battle cruisers left, but still had 19 major ships to the British eight.

After about 15 minutes of action the *Indefatigable* blew up.

At 4.20 five *Queen Elizabeths* joined enemy battle line, and all ships opened fire on our battle cruisers.

(German reports make no mention of submarines.)

At about 4.20 a destroyer attack was launched in the hope of reducing the enemy's superiority. Two German and two British destroyers were sunk, and two others (*Nestor* and *Nomad*) were disabled and later were sunk by the battle fleet.

At 4.30 the *Queen Mary* was sunk.

German main fleet approached from the south and British battle cruisers turned and retired northward at high speed, closely followed by the German fleet.

The battleships at the head of the German main fleet exchanged intermittent shots with the *Queen Elizabeths*.

Hostile ships showed a desire to run in a flat curve across the head of our line and to cross it.

About 5.45 English small cruisers and destroyers attacked, but made no hits.

THE BATTLE—Continued

At about 6.10 or 6.15 *Invincible, Inflexible,* and *Indomitable,* arrived and swung into line ahead of Beatty, who changed course to ESE. The British battle squadrons, coming down on a SE. by S. course, followed astern of Beatty. Leading ships were about 8000 yards apart with the British well advanced.

British fleet endeavored to close by altering course to S. and then to W. by gradual changes, but the Germans turned away, bringing the British to a quarterly bearing between the German fleet and its base.

During this stage several German ships hauled out of line and at least one sank.

Invincible sank about 6.20 (Pollen).

Marlborough (*Iron Duke* class) was hit by a torpedo at 6.17, but continued in the action.

An accident to the *Warspite's* helm caused her to turn toward the enemy, but she regained her station.

At 5.45 British battle cruisers withdrew from the fight—permanently so far as we have determined. A line of at least 25 large ships appeared out of the mist to NE. These first sought a junction with Beatty on a NW. to westerly course and then turned to an easterly to southerly course.

The *Lutzow* was hit by 15 heavy shells and dropped out of line. Sank while returning to base.

Invincible sank between 6.20 and 6.30.

One *Iron Duke* was hit by a torpedo.

One *Queen Elizabeth* was seen to be running around in a circle.

One *Queen Elizabeth* blew up.

As the British battle squadrons were joining the battle cruisers detached actions were fought, which are described as follows:

At 6.16 the armored cruisers, endeavoring to meet a destroyer attack, found themselves unexpectedly under the guns of German battleships appearing out of the mist. *Defence* was sunk; *Black Prince* was damaged and sank later; *Warrior* was damaged and sank next day on way to base.

In small craft actions the *Shark* (British destroyer) was sunk at 6.16 by light cruisers while one German light cruiser was sunk at 5.55 by *Defence* and *Warrior,* and another was torpedoed by the *Onslow* (destroyer) at 6.05. The *Onslow* was torpedoed and badly damaged.

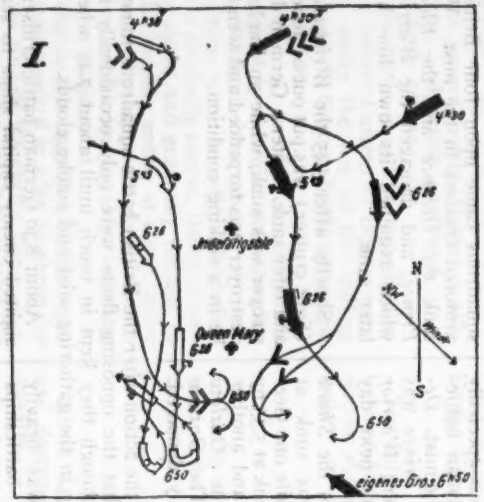
While steaming NE. to meet the British main fleet the German battle squadrons came upon four British armored cruisers in the mist. We sank the *Defence* and the *Black Prince,* and damaged the *Warrior* which regained its own line but later sank.

Shortly after 5.45 the *Weisbaden* (light cruiser) was put out of action and later sank. Later a German destroyer was sunk, while an English destroyer was torpedoed and seen to be in a sinking condition.

Both sides agree that the action after the British battle squadrons joined was intermittent and that the opposing fleets were only occasionally in sight of one another, though they kept in touch until about 7.45 when contact was lost entirely in the gathering mist and smoke clouds.

About 8.30 Beatty was heavily engaged with German battleships and battle cruisers, apparently the leading ships of the fleet.

About 8.30 German battle cruisers sighted enemy capital ships to seaward and opened fire. Two German battle squadrons joined the action and the enemy turned and vanished in the darkness.



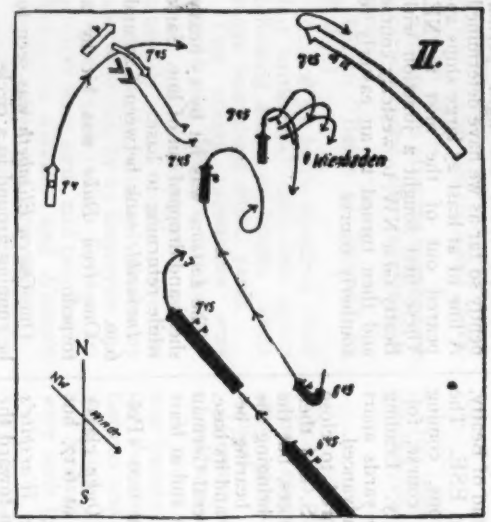
Hostile vessels

- Small cruisers.
- First battle cruiser squadron.
- Queen Elizabeth division.
- Torpedo boat flotillas.

Our vessels

- Small cruisers.
- Battle cruisers.
- Torpedo boat flotillas.
- Destroyed.

BATTLE OF JUTLAND, 1ST PHASE[1]



Hostile vessels

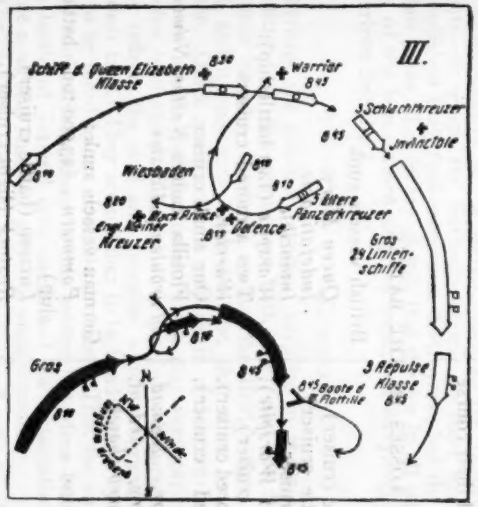
- Small cruisers.
- First battle cruiser squadron.
- Queen Elizabeth division.
- Main fleet (battleships).
- Torpedo boat flotillas.

Our vessels

- Small cruisers.
- Battle cruisers.
- Main fleet (battleships).
- Torpedo boat flotillas.

BATTLE OF JUTLAND, 2D PHASE[1]

[1] From German Official Story of the Skagerrack Sea Fight in *Scientific American*, August 19.



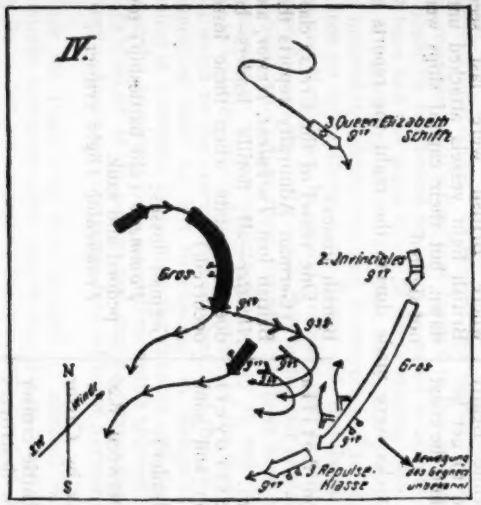
Hostile vessels

- Small cruisers.
- Queen Elizabeth division.
- 3 battle cruisers.
- 5 older armored cruisers.
- Main fleet (battleships).

Our vessels

- Battle cruisers.
- Main fleet (battleships).
- Torpedo boats.
- Destroyed

BATTLE OF JUTLAND, 3D PHASE[1]



Hostile vessels

- Queen Elizabeth division.
- 2 Invincibles.
- Main fleet (battleships).
- Torpedo boat flotillas.

Our vessels

- Battle cruisers.
- Main fleet (battleships).
- Torpedo boat flotillas.

BATTLE OF JUTLAND, 4TH PHASE[1]

[1] From German Official Story of the Skagerrack Sea Fight in *Scientific American*, August 19.

THE BATTLE—Continued

During the night Jellicoe maneuvered to remain between the German fleet and its base, while Beatty pushed to the eastward to get between the German fleet and the coast of Jutland.

During the night the German fleet cruised in a southerly direction where British were last seen. British light vessels attacked until dawn, but their capital ships were not sighted.

Several destroyer attacks were made during the night the reports of which state:

British losses:

Tipperary (1850-ton flotilla leader).
Ardent (destroyer).
Fortune (destroyer).
Sparrowhawk (destroyer).
Damaged in collision and sank later.
Turbulent (flotilla leader).

German losses:

Four destroyers between 8.20 and 8.40.
One destroyer sunk by *Castor* during night.
One battleship or battle cruiser torpedoed and sunk by destroyers during night.

British losses:

One vessel of the *Creesy* class.
(German Admiralty reports that British lost *Turbulent*, *Nestor*, and *Alcaster*—all flotilla leaders—but does not state when these losses occurred.)

German losses:

Pommern (old battleship) torpedoed and sank.
Frauhenlob (light cruiser).

JUNE 1

At day-light British fleet cruised to northward to meet German fleet which could not be found. About 4 a. m. engaged a Zeppelin for about 5 minutes. At 1.15 p. m. the divisions of the fleet shaped their course for their bases.

LOSSES IN THE BATTLE

British vessels sunk:

Queen Mary (battle cruiser).
Indefatigable (battle cruiser).
Invincible (battle cruiser).
(British deny loss of *Warspite*).
Defence (armored cruiser).
Black Prince (armored cruiser).
Warrior (armored cruiser), sank on way to base.
Destroyers *Nestor*, *Nomad*, *Turbulent*, *Tipperary*, *Ardent*, *Fortune*, *Shark*, *Sparrowhawk*.

German vessels sunk:

Two large battleships.
One old battleship.
One battle cruiser.
Five light cruisers.
Six destroyers.

British vessels sunk:

Queen Mary.
Indefatigable.
Invincible.
Warspite (fast battleship).
Two armored cruisers.
Warrior.
One small cruiser.
Flotilla leaders *Nestor*, *Nomad*, *Turbulent*, *Alcaster*.

German vessels sunk:

Pommern (13,000-ton battleship).
Lutzow (battle cruiser).
Rostock (light cruiser).
Elbing (light cruiser).
Weisbaden (light cruiser).
One other light cruiser.
Five destroyers.

REVIEWS OF THE REPORTS ON THE BATTLE

WEATHER CONDITIONS

That Sir John Jellicoe was severely handicapped by the weather conditions is undoubted. As history has shown, no naval victory has ever been complete when a fleet was formed in line of battle, a formation which no doubt he felt bound to adopt to avoid accidents in the misty weather. We have had too many cases of fleets missing each other, both in history and in maneuvers, to wonder that touch was lost with the German fleet; and minefields, submarines, and destroyers had to be considered. Admiral Jellicoe no doubt thought, as Beatty did, that being between the German fleet and their base, he would probably fall in with the enemy again on the morning of the first of June, but he has not explained why by detaching fast cruisers to follow them, he could not have been kept informed of their movements so as to complete the victory so well begun. But I have no wish to criticise; undoubtedly, the safety of the fleet during the dark hours must weigh on the commander-in-chief, and though risks must be run, and "something must be left to chance," in Nelson's words, it is for the admiral in command to balance the chances and decide. It is enough for us that the Admiralty have given their entire approval of the commander-in-chief's conduct of the action, and that he retains the full confidence of the officers and men serving under him.—*United Service Magazine,* August.

How the High Seas fleet escaped its clutches we do not know. The Admiralty communication says it was due to "low visibility and mist." It may be so, but we confess to being a little tired of Admiralty communications blaming the weather. It is alien to the spirit of the sailor. When the three *Creesys* were sunk, because they were unaccompanied by destroyers, the blame was put on the weather, just as was the case when the *Hampshire* went down with Kitchener on board. The Dardanelles failure was a long-drawn tale about the weather. We had from the India office something in the same vein about the relief which never got to Kut. After the *Scarborough* bombardment, the German armored ships escaped because of the "low visibility and mist." In no circumstances is one allowed to blame an administrative act or defect, such as the failure to provide Zeppelin scouts—of which the Germans appear to have made considerable use—or sufficient high fuel-endurance destroyers; but the clerk of the weather is fair game. Let us say plainly that the sea in all its aspects is always the ally of the best-trained and best-equipped navy.—*Quarterly Review,* July. (Carlyon Bellairs.)

GUNNERY

Perhaps the greatest technical surprise of the action was the apparent inefficiency of the gunfire on both sides, and the fact that only a single torpedo hit was registered against the British fleet. It has been pointed out, and it may very likely be true, that these two things explain each other. Quick maneuvering may again and again have saved ships from torpedo attack, and the maneuvering may very easily have rendered their gunfire ineffective. The result is woefully disappointing, because it in no way reflects the skill and devotion which the gunnery men have brought to their task. They seem either to be handicapped by an ineffective method, or to be faced by an insoluble problem. That the existing fire control has very marked limitations in this matter has often been pointed out, so that the battle of Jutland only confirmed the expectations of those who had made a careful study of previous engagements.

The result is certainly in sharp contrast with all that may be called the ordinary lay expectation of a sea action. Speaking in the House of Commons on March 18, 1912, Mr. Churchill said:

"We must expect that in a fleet battle between good and efficient navies equally matched, tremendous damage will be reciprocally inflicted. Many ships on both sides will be sunk or blown up. Many more will sustain injuries which will take months to repair. Others, again, will not come out again during the whole of the war. Indeed, the more we force ourselves to picture the hideous course of a modern naval engagement, the more one is inclined to believe that it will resemble the contest between Mamilius and Herminius at the battle of Lake Regillus, or the still more homely conflict of the Kilkenny cats."

Never has the potential power of naval force stood in so sharp a contrast with its actual efficiency in war. So far from battleships destroying each other with the fierce facility of Kilkenny cats, it seems that they can to-day maintain a reciprocal bombardment from a quarter to four until seven o'clock at night with only three ships being sunk on one side and apparently only one by gunfire on the other. Yet had any one of von Hipper's or Admiral Scheer's squadron been anchored, and any of Admiral Evan Thomas's squadron been allowed five salvos at her from a range of 14,000 yards, it would be dreadnoughts to doughnuts that the German ship must have been sunk before the fifth salvo was fired. It is a state of affairs that illustrates how little the gunnery difficulties which action maneuvers must create, were appreciated before the war. Not that there has not always been in the navy a considerable party, strong both in brains and in numbers, that in season and out of season urged that there could be no war fitness till fire control was put upon a scientific basis. But it was unfortunately a party that never, in the six years preceding the war, was represented directly or indirectly on the Board of Admiralty. So long as fire control methods gave results that could be made to appear good at battle practice, it was confidently assumed that they must give good results in battle. There never was but one department that protested against this very dangerous optimism. Successive instructors of target practice—whose duty it was not only to report results, but to analyze them—had no difficulty in detecting the fallacy that underlay the complacency of the Whitehall Department. But the I. T. P. had no executive power and no official status as an adviser. From 1910 to 1913 the departments of I. T. P. and D. N. O. were consequently at continuous loggerheads. The first represented the gunnery experience and the gunnery requirements of the fleet; the second, the soporific theories of official infallibility. An intolerable position was ended by the abolition of the first department altogether. War has exposed the wisdom of these proceedings.

The comfort is that the break with Germany came before the German Navy had developed any more effective system of fire control than had we. The Germans are great masters of optical science, and it is possible that the claim made on their behalf that they have far better range-finders and sights than we, may have some foundation. But no range-finder, however good, will solve the chief difficulties of fire control, and in the absence of a really scientific method, that side will reach the highest efficiency that has the most experienced personnel. In this respect the British Navy is certainly unrivalled. Excellent as the German gunnery has been in the opening phases of every engagement, in none has its quality survived. The enemy may secure the first hits. He has often done so. But he has never secured the last.—*Land and Water*, 10/8.

. . . . Here it may be remarked that the German fire was extraordinarily accurate in the early part of the battle, but that it deteriorated appreciably under our tremendous volume of fire. It was the triumph of the big gun and of the all-big-gun ship. The utmost credit is due to our gunnery officers, for the quality of our marksmanship was maintained, while the Germans, with guns out of action and scientific instruments destroyed, were unable to continue effective fire.—*Nineteenth Century*, August.

. . . . Owing to the perfection of the German sighting arrangements, the calibration, and the elevation of from 25° to 28° given to the guns for long-range firing, the loss of two battle cruisers was inflicted on us in the very early stages of the fighting. These were not surprises for us. All the naval fights in this war have shown that very remarkable ranges were attained by all descriptions of German guns, and that the spread of their salvos was markedly less than our own.—*Quarterly Review*, July.

STRATEGY

Sir John Jellicoe's strategy has been the reverse of the sallying policy of the Germans. From time to time he has cruised with the whole of his fleet, or a large part of it, through the North Sea. It was a concerted movement of this character that brought about the battle in the Heligoland Bight on the 28th of August, 1914. In the following month we heard of numerous strong flotillas sweeping the North Sea up to and into the Heligoland Bight without seeing a German ship. Similar operations were conducted subsequently at frequent intervals, such movements in the early part of the war being difficult and fraught with danger, owing to the large area covered by the fleet, the existence of mines and the activity of enemy submarines.

We are still in doubt as to the real purpose of the Germans in their "enterprise directed northward." Our knowledge of German naval policy and strategy would lead us to believe that they had in hand no greater enterprise than a sally, though we cannot feel absolute certainty on that point. At the very basis of all their preparations has lain the principle of the sally—the strategy of a nation besieged. When vague ideas of coast defence and commerce protection which were current in Prince Adalbert's days, and were not consonant with any right conception of strategy, had been cast aside, the policy of the sally was adopted, and the intention of the Navy Law of 1898 was the creation of a sallying fleet (*Ausfallsflotte*). The object of such a fleet was the attrition of the enemy's strength, and in particular of his naval forces. It was to issue forth, effect what damage it could, and return. . . . .—*Quarterly Review*, July.

A GERMAN OPINION ON THE BATTLE

A part of the English press has been at great pains for some time to represent the course of the Skagerrack fight about in these terms: The German fleet has had some secret strategic purpose. The British, on account of the unfortunate lack of light, were, from the first appearance of the Germans, not sufficiently well-informed to be able to attack in full force. The "overbold" cruisers of the English fleet therefore met the greatly superior full force of the Germans. In combat with these vessels, which were also supported by submarines, mine fields, gas bombs, airships, and other "unfair" means, they suffered considerable loss. Then, when the genial British admiral at the proper moment brought up his main fleet, the German fleet unfortunately avoided the defeat and destruction prepared for it by flight to a safe harbor. Result: No attainment of the German strategic purpose, the complete tactical defeat of the German fleet by the superior English gunnery, no loss of prestige for England. The victorious English fleet rules the North Sea now as before.

The day will come when England herself will be ashamed of these fabrications. A correct historical study will be mercilessly freed from such self-delusions.

The official German report sets forth correctly the place, time of day, and course of the fight, and makes it clear what was planned and what was accomplished. No secret strategic purpose actuated the German fleet. It was anxious to fight and sought the enemy for that purpose where he had last been announced. For this very purpose the German fleet had previously gone to sea repeatedly. It is not its fault if the English fleet was not on the spot at an earlier date. Unlike the opponents of the English in the affair of 1794, its movements were restricted by no worries

over the safety of a convoy, or any such matters. It always went to sea to fight. That the Germans desired to fight under the most favorable practical conditions possible, was their good right, especially in the rôle of the considerably weaker party numerically. It was, and is, good tactics to be stronger at the point of contact than the enemy. Lord Nelson taught the world many years ago at Aboukir and Trafalgar that this applies to sea-power. Were it otherwise, the weaker party would never have a chance of victory. The outcome of the battle indicates that the German intention of fighting under advantageous tactical conditions was realized, thanks to skillful management by the German staff. Wind, weather, position of the sun, and location of the scene of action are all weighty factors in such a tactical calculation. The attacker, in this case the German fleet, had, as always, the advantage of determining the time and place of the battle, and of therefore being able to regulate to its own advantage many of the factors mentioned. That is always the advantage of the offensive over the defensive. To take the offensive is to command the enemy. He who does this has trust in his material and personnel. He reckons in advance upon victory and its fruits. To English dullness it seems incomprehensible that the German fleet, outnumbered almost two to one, did not come to anchor somewhere and wait patiently until the entire English force had gathered about unmolested in order then to be able to put through, without risk, the oft threatened program of complete annihilation. This was not our intention. The German sea chief would not willingly help the English to such cheap renown.

The German fleet, so says the Naval Act of 1900, is conceived and built as a "risk-fleet." Contemplation of the risk of battle, it was hoped, would keep us in peace. When war became unavoidable, however, the risk of battle should be so great for the enemy that the position of even the strongest sea-power would be threatened thereby. The correctness of this underlying principle of our naval program is now substantiated by the victory of the German fleet.

The English assert that the battle was fought only between parts of the opposing fleets. This the official report has unequivocally contradicted. The entire English fleet was in action against the German. It was the constantly repeated attacks of our torpedo-boat flotillas upon the head of the English battleship line, led by Admiral Jellico himself, that caused the English leader to break off the fight. An explanation for this can be sought and found only in the fact that the English battleship squadrons had suffered such heavy losses from our guns and torpedoes that a continuation of the maneuvers begun by him seemed dangerous to the English admiral. In any event, from this moment he withdrew from the zone of fire of our ships. Smoke and fog which gathered upon the field of battle unfortunately prevented this movement from being clearly discerned. From this point on, the German commander-in-chief executed all movements of our forces already begun without interference and as correctly as though on parade, and got the night march under way.

The absured claim that submarines, Zeppelins, mine fields and poisonous gases were the sources of the German victory attained in honorable battle has been sufficiently refuted from German official sources. The English claim is very transparent. If neutrals must be informed that the sea-ruling and strongly preponderant English fleet has suffered such extraordinary and unlooked-for losses, the German victory must, at any cost, be denied to have had its origin in the natural way through "sheer hard fighting" of the warships with those queens of weapons, guns and torpedoes; some German deviltry must be exhibited as the source of the misfortune. English pride will not and cannot be satisfied that any other fleet has surpassed its own in gunnery.

Finally, the "flight" of the German fleet to its base. Which had the greater numbers—of battleships especially, but also cruisers and torpedo-boats—the English fleet or the German? Whose squadron had the greater average speed? Both fleets, as stated above, were in close battle contact

almost until the fall of darkness. The German fleet was more than 150 miles from its nearest base, in the open sea. It is almost a straight line from the scene of the battle to Heligoland. Doubt as to the course of the German fleet could hardly exist. It was a short June night with barely five hours of darkness. Is there a single Englishman of intelligence who really hopes to make the world believe that an energetic, eager-to-fight, unhampered English admiral could not have kept in touch with the German fleet during the night by means of his light vessels, if the desire to wipe them out still lived in him, and the strength for this operation was at hand? Was physical and mental strength denied the comparatively young Admiral Jellico, as once before on June 1, 1794, it was denied the aged Lord Howe? Shall the ill success of the commander of the English fleet be taken as a confession of inadequate seamanship and deficient tactical skill on the part of his scout ships? In the hard drills of the long years of peace has not the English fleet, with its many swift cruisers, learned how to keep track through one short night of a hostile fleet numbering in the neighborhood of 30 capital ships? We do not believe it; we rate English ability too high for that. Sir Jellico has actually thanked Sir Beatty for his work of scouting. He must have been satisfied with it. Will the English commander have us believe that, on the basis of the information brought him by his observers, it was impossible for him, on the morning of June 1, to take a position which would have enabled him to offer decisive battle to the German fleet? The course of the latter was without doubt known to Admiral Jellico through the work of his scouts, either of those upon which the German fleet had had occasion to direct a precautionary fire, or else of those which successfully engaged the *Pommern* and the *Frauenlob*.

Like burning torches in the descending darkness, the wrecked English cruisers and destroyers marked out for him the path of the German fleet. Why did he not hurl at that fleet, whose destruction was his ordained task and his eagerly pursued purpose, the squadron of 12 vessels arriving fresh and intact from the south, thus holding the hostile forces until he himself could reach the new scene of battle? That he did not do this, that he did not even make an effort to do it, proves that he felt himself too weak for further battle. The victorious German fleet and the English admiral both steered for a home port, and the German ships found time on the way to rescue many brave English seamen of the sunken ships and to bring them in as prisoners.

The German commander and the whole German fleet actually waited on the morning of June 1, on their way toward the inner German waters, in the hope of finding the reinforced English fleet ready for further fighting. But they did not appear; when the sun of June 1 arose the sea was empty of the foe and remained so. For the German admiral to stay at sea with the purpose of seeking out the enemy there was no occasion. His end had been attained, his work finished. The desire to replenish his provisions and fuel, to give his brave crews their well-earned rest, and to disembark his wounded in order to be quickly ready for a new encounter, easily explains his decision.—Captain Z. S. Hollweg of the German Navy Department in *Scientific American*, 26/8.

NORTH SEA AND THE CHANNEL

GERMAN AIRCRAFT RAIDS ON ENGLAND

During the period covered in this issue of the PROCEEDINGS—July 15 to September 14—Zeppelins were not particularly active. On the night of July 28-29, Zeppelins attacked the English east coast and, according to German reports, dropped bombs on the railway depot at Lincoln, the naval bases at Grimsby and Cunningham, and on advance—post vessels off the Humber, destroying the lighthouse at the mouth of the Humber. The British deny that any material damage resulted. The Zeppelins returned

undamaged. It was possibly one of these returning raiders that passed over Flushing on the afternoon of July 29 and was fired at by the Dutch frontier guards. Again on August 1 the Germans report attacks by Zeppelins on London and the eastern counties of England, with apparent success in dropping bombs on coastal works, anti-aircraft batteries, and munition plants. The English press reports of this raid mention at least six Zeppelins; estimate that about 60 bombs were dropped and deny that there were any British casualties. It appears that none of the Zeppelins was damaged. On August 12 two German seaplanes raided Dover, dropping four bombs which injured seven persons, but did little material damage. During the night of September 2 Zeppelins attacked London, Yarmouth, and Harwich and other places in the southeastern counties. The usual reports and denials of damage were made by the belligerents, and Berlin admits the loss of one Zeppelin which was brought down by a British aeroplane while approaching London.

BRITISH SEAPLANE RAIDS ON GERMANY

The *London Times* reports that on July 30 British seaplanes in conjunction with the French, attacked the benzine stores and barracks at Mülheim on the Rhine, and carried out a successful bombardment; all machines returning safely. The *Times* adds that this is the eighth air raid on Mülheim that has been officially reported.

GERMAN DESTROYERS RAID THE THAMES

On July 22 a German flotilla raided the British coast, the text of the English statement being as follows:

"At midnight of July 22, while near the North Hinder Light vessel, some of our light forces sighted three enemy destroyers, who retired before damage could be inflicted on them.

"Subsequently, off Schouwen Bank, six enemy destroyers were engaged and a running fight ensued, during which the enemy was repeatedly hit, but he succeeded in reaching the Belgian coast. One of our vessels was hit once and one officer and one man were slightly wounded. There was no other damage of casualty."

Heavy firing was heard off the Dutch coast all day Sunday, says a dispatch from The Hague to the Exchange Telegraph Company. Five German destroyers were observed returning toward Zeebrugge. Two of them had a heavy list.

The German version is as follows:

"In the night of July 22-23 German torpedo-boats, starting from Flanders, undertook a raid extending until they were close to the mouth of the Thames without sighting hostile naval forces there. While returning they encountered several small British cruisers of the *Aurora* class and destroyers. A short artillery engagement followed, in the course of which we obtained luckly hits. Our torpedo-boats returned to their base undamaged."

ACTIVITIES OF GERMAN SUBMARINES

There are unconfirmed reports that on July 11 German submarines in the North Sea destroyed a 7000-ton British auxiliary cruiser and three patrol boats. The British Admiralty admit the German claim that on August 24 a German submarine torpedoed and sunk the *Duke of Albany*, an armed merchant ship of 1977 tons, used for boarding purposes. The British destroyer *Lassoo* was sunk off the Dutch coast on August 13, after an explosion which is generally attributed to a mine or a torpedo.

THE GERMAN FLEET COMES OUT

The Allied press reports that on August 19 the German High Sea fleet came out but returned to port after an action between their scouts and

those of the British fleet. The Germans deny that their fleet was driven back to port by the British, but do not state the object of the maneuver nor why their fleet did return. The losses admitted by both sides are the *Nottingham* and the *Falmouth*, British light cruisers of recent date, which were torpedoed by submarines during scouting operations. A British destroyer rammed a German submarine which, according to Berlin, returned to port only slightly damaged, and the German battleship *Westfalen* was torpedoed and damaged to a slight extent by the submarine *E-23*. The German claim that a British battleship was badly damaged by a torpedo from a submarine, and that a destroyer was sunk is denied by the British, while the Germans do not admit the loss of a submarine which British accounts claim. The fighting seems to have been confined to attacks by submarines of both fleets, which penetrated the outer screens, and it is reported on somewhat vague authority that contact occurred near the Dogger Bank about 35 miles off the coast of Holland.

THE BALTIC SEA

Activities in this area have been confined to seaplanes' raids, the only important results being told in an unconfirmed report from The Hague that a Zeppelin was damaged by Russian anti-aircraft guns during a raid on Riga in July and fell near Tukum, where German engineers salvaged the machinery. A Reuter dispatch from Sweeden announces that Russia intends to lay mines around the Aland Islands as far as the Sweedish territorial waters. It appears that Russia early in the war fortified these islands which command the entrance to the Gulf of Finland.

THE MEDITERRANEAN SEA

The Italian Navy has suffered the loss of two submarines which, the Admiralty states under date of August 3, left with others on a mission to the enemy coast "a long time ago" and have not been heard from since. A Vienna dispatch of August 3 reporting the capture of the Italian submarine *Giacinto Pullino* in the North Adriatic may refer to one of these vessels. Further Italian losses are the destroyer *Impetuoso*, sunk by a submarine in the Straits of Otranto on July 10, and the battleship *Leonardo da Vinci* which caught fire and blew up in the harbor of Taranto some time in August. The Italian Admiralty has announced neither the cause nor the exact date. The *Army and Navy Journal* is authority for the statement that the ship may be refloated.

An engagement is reported to have taken place on August 2 off the Italian coast between Austrian torpedo-craft and Italian destroyers in which small damage seems to have been inflicted on either side.

Press reports of the Allies claim that an Italian submarine torpedoed an Austrian destroyer in the upper Adriatic on August 2, evidently referring to the "torpedo gunboat" *Magnet* which Vienna reports was damaged on that day by submarine torpedo fire, but returned to port. Other Austrian losses claimed by the Allies, but not referred to in the somewhat meager reports that have come through from Vienna, include a submarine torpedoed off Corfu by a French destroyer early in August, and a transport torpedoed by the French submarine *Archimede*.

Important movements of vessels include the arrival of an Allied fleet off the Piraeus on August 2, when some German and Austrian merchant ships were seized by boarding parties and the evacuation of Trieste by the Austrian fleet, which is chronicled in a Geneva dispatch of July 17. The dispatch does not state whether the fleet left under threat of the Italian advance or in the ordinary course of events.

Seaplane raids are reported by Italy and Austria, but the results appear to be unimportant.

Turkey reports that Allied warships bombarded Alexandretta, Asiatic Turkey, on an unannounced date, the damage, with the exception of the destruction of the American consulate, being insignificant.

Allied and Turkish reports refer to the bombardment of Beirut, Syria, on July 7, by a British aeroplane which was transported on a French destroyer. Details of this interesting operation are lacking.

THE BLACK SEA

The *Breslau* and the *Goeben* have evidently survived, since the *Army and Navy Gazette* publishes an official announcement from Petrograd that these vessels on July 4 bombarded ports on the northeastern shore of the Black Sea.

Russian activity on the Black Sea has been confined to assisting a Russian land force in turning back a Turkish drive along the Armenian coast.

The *New York Times* of August 7 publishes a dispatch from Copenhagen which states that a British submarine entered the harbor of Constantinople early in August and torpedoed two large steamers, afterwards bombarding the suburbs of the capital.

MISCELLANEOUS NAVAL ACTIVITIES

LAKE TANGANYIKA

The *New York Herald* states that on July 28 the last German gunboat left on the lake, the *Graf von Gotzen*, was sunk by the Belgian gunboat *Netta*.

VLADIVOSTOCK

The following is taken from the *New York Herald* of July 17:

"It is learned here on good authority that the captain of the Russian warship *Peresviet*, which was recently wrecked on a nearby island during a trial run, committed suicide shortly after the accident.

"With two other warships the *Peresviet* was recently purchased from Japan. The three ships in question were captured from the Russians by the Japanese during the Russo-Japanese War. After being refitted and manned with a Russian crew the *Peresviet* was taken out for a trial run, but ran ashore in a thick fog. In atonement the commander killed himself.

"Japanese warships are aiding in the attempts at salvage."

GERMAN SHIP RUNS THREE BLOCKADES

The *New York Times* of September 1 publishes the following:

"BERLIN, August 30.

"A brief account of the voyage of the German steamship *Marie*, which reached the Dutch harbor of Batavia on May 13, after escaping the British blockade against German East Africa, instead of taking refuge in an African river as then reported, shows that the vessel left Germany in January with a cargo of supplies for the German forces fighting in East Africa.

"The *Marie* successfully ran the blockade in the North Sea and at the mouth of the Sudi River and delivered her cargo, which, German officials say, enabled the German soldiers to continue their resistance against the forces of the Entente Allies invading the German colony.

"German naval officers say the expedition deserves to rank with the cruisers of the commerce raiders *Emden* and *Moewe*. The *Marie* was unarmed. Three times she broke blockades established by warships of the Entente Allies and on the last occasion she was forced to run in darkness within 50 yards of a British gunboat which was patrolling the Sudi River.

"During a several days' bombardment by British cruisers and gunboats, when 1131 shells were fired, the *Marie* was hit 105 times. Nevertheless, the vessel was able to reach a neutral harbor."

TABLE OF NAVAL LOSSES OF THE VARIOUS BELLIGERENTS SINCE THE OUTBREAK OF WAR

The following table is compiled from various articles appearing in the press of the several belligerent nations. These reports are so contradictory that it is impossible to furnish an absolutely correct list of vessels lost to date. In many cases the belligerent powers have failed to acknowledge the losses of all the vessels. No attempt has been made to include herein a list of the various trawlers, mine-sweepers and such odd small craft which may have been destroyed while mine-sweeping or on submarine patrol duty.

(On the left margin of this table of losses is a reference to the whole number in which an account of the loss is given. A page index of these losses is given in the whole number referred to.

ABBREVIATIONS FOR TYPE OF VESSEL

Dreadnought battleship	d. b.	Torpedo-boat	t. b.
Battleship	b.	Submarine	sm.
Battle cruiser	b. c.	Auxiliary cruiser	ax. c.
Armored cruiser	a. c.	Transport	tr.
Protected cruiser	p. c.	Minelayer	m. l.
Cruiser	c.	Coast guard	c. g.
Light cruiser	l. c.	Hospital ship	h. s.
Gunboat	g. b.	Training ship	tr. s.
Torpedo gunboat	t. g.	Patrol boat	p. b.
Monitor	m.	Armed merchant vessel	a. m. v.
River monitor	r. m.	Yacht	y.
Flotilla leader	f. l.	Naval tender	n. t.
Destroyer	d.		

LOSSES OF GREAT BRITAIN AND HER ALLIES

BRITISH WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
154, 155, 156	Audacious	d. b.	24,000	Reported sunk off Irish coast. Cause unknown. British Admiralty, non-committal	29-10-14
155	Bulwark	b.	15,000	Internal explosion at anchor in the Thames	25-11-14
156	Formidable	b.	15,000	Sunk by German sm., North Sea	1- 1-15
156	Irresistible	b.	15,000	Sunk in the Dardanelles	18- 3-15
156	Ocean	b.	12,950	Sunk in the Dardanelles	18- 3-15
161, 162	King Edward VII	b.	16,350	By mine, North Sea	9- 1-16
158	Goliath	b.	12,950	Torpedoed in Dardanelles	12- 5-15
158, 161	Triumph	b.	11,800	Sunk by sm., Dardanelles	25- 5-15
158	Majestic	b.	14,900	Sunk by sm., Dardanelles	27- 5-15
163, 164	Russel	b.	14,000	Sunk by mine, Mediterranean	26- 4-16
164	Queen Mary	b. c.	27,000	Sunk by gunfire, battle of Jutland	31- 5-16
164	Indefatigable	b. c.	18,750	Sunk by gunfire, battle of Jutland	31- 5-16
164	Invincible	b. c.	17,250	Sunk by gunfire, battle of Jutland	31- 5-16
161, 162	Natal	a. c.	13,360	Internal explosion and sunk at anchor	30-12-15
153	Warrior	a. c.	13,550	By mine	5- 9-14
154	Hogue	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154	Cressey	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154	Aboukir	a. c.	12,000	Sunk by German sm. U-29, North Sea	22- 9-14
154	Hawke	a. c.	7,350	Sunk by German sm. U-9, North Sea	16-10-14
154, 155	Good Hope	a. c.	14,100	Sunk by German forces in Pacific	1-11-14
154, 155	Monmouth	a. c.	9,800	Sunk by German forces in Pacific	1-11-14
160	Argyll	a. c.	10,850	Ran aground, east coast of Scotland	28-10-15
164	Defense	a. c.	14,600	Sunk by gunfire, battle of Jutland	31- 5-16
164	Black Prince	a. c.	13,550	Sunk by gunfire, battle of Jutland	31- 5-16
164	Warrior	a. c.	13,550	Sunk by gunfire, battle of Jutland	31- 5-16
164	Hampshire	p. c.	10,850	Sunk by mine, off Orkneys	6- 6-16
153, 155	Pathfinder	l. c.	2,940	Sunk by German sm., North Sea	5- 9-14
165	Falmouth	l. c.	5,250	Sunk by German sm., North Sea	19- 8-16
165	Nottingham	l. c.	5,440	Sunk by German sm., North Sea	19- 8-16
153	Amphion	l. c.	3,360	Sunk by mine, North Sea	6- 8-14
153	Pegasus	l. c.	2,135	Sunk by German c. Koenigsberg at Zanzibar	20- 9-14
162	Arethusa	l. c.	3,750	By mine off east coast of England	14- 2-16
155	Hermes	l. c.	5,600	Sunk by German sm. U-27, North Sea	30-10-14
163	Penelope	l. c.	3,600	Reported damaged beyond repair, attack on Hovestoft	25- 4-16
153	Speedy	t. g.	810	Sunk by mine, North Sea	3- 9-14
154, 155	Niger	t. g.	810	Sunk by German sm. while at anchor	11-11-14
164	M-30	m.	——	Sunk by Turkish gunfire, Gulf of Smyrna	13- 5-16

BRITISH WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
164	Tipperary	f. l.	1,850?	Sunk by gunfire, battle of Jutland	31- 5-16
164	Turbulent	f. l.	?	——Sunk by gunfire, battle of Jutland	31- 5-16
	Bullfinch	d.	370	Sunk in collision with Dutch merchant ship	18- 8-14
	——	d.	——	Ran ashore, Scotch coast	27-12-14
	Erne	d.	550	Wrecked in a storm	- 2-15
157, 158	Recruit	d.	385	Sunk by German sm., North Sea	1- 5-15
157, 158	Maori	d.	1,035	Blown up by mine off Belgian coast	7- 5-15
159	Lynx	d.	935	Sunk by mine	10- 8-15
161	Louis	d.	965	Wrecked, Eastern Mediterranean	10-11-15
162	Coquette	d.	365	Sunk by mine, North Sea	?- 3-16
164	Fortune	d.	920	Sunk by gunfire, battle of Jutland	31- 5-16
164	Sparrowhawk	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Ardent	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Shark	d.	950	Sunk by gunfire, battle of Jutland	31- 5-16
164	Eden	d.	555	Sunk after collision, English Channel	16- 6-16
164	Nomad	d.	——	Sunk by gunfire, battle of Jutland	31- 5-16
164	Nestor	d.	——	Sunk by gunfire, battle of Jutland	31- 5-16
165	Lassoo	d.	——	Sunk, mine or torpedo, North Sea	13- 8-16
	Medusa	d.	——	Sunk in collision	?
158	No. 10	t. b.	244	Sunk by German sm., North Sea	10- 6-15
158	No. 12	t. b.	253	Sunk by German sm., North Sea	10- 6-15
160	No. 96	t. b.	130	Sank after collision with merchantman, Straits of Gibraltar	1-11-15
162	No. 11	t. b.	253	Sunk by mine, North Sea	?- 3-16
153	AE-1	sm.	725-810	Accidentally sunk off Australian coast	14- 9-14
154	E-3	sm.	725-810	Rammed and sunk by German vessel	18-10-14
154, 155	D-5	sm.	550-600	Sunk by German mine, North Sea	3-11-14
	D-2	sm.	550-600	Reported lost. Details not known	1-12-14
	E-10	sm.	725-810	Missing, North Sea	
157	E-15	sm.	725-810	Ran aground in the Dardanelles and destroyed by own picket boats	17- 4-15
162	——	sm.	——	Stranded, Dutch coast	6- 1-16
162	E-17	sm.	725-810	Reported as sunk off Holland	6- 1-16
159, 160	AE-2	sm.	725-810	Sunk, Sea of Marmora	30- 4-15
	E-13	sm.	725-810	Sunk by German torpedo craft off Danish coast	19- 8-15
160	E-7	sm.	725-810	Sunk at Dardanelles	4- 9-15
160, 161	E-20	sm.	——	Announced as sunk by Turks in Dardanelles	5-11-15
163	E-22	sm.	——	Sunk off Holland	6- 1-16
154	Oceanic	ax. c.	17,274	Ran aground off north coast of Scotland in storm	8- 9-14
162, 163	Alcantara	ax. c.	15,300	Sunk in battle, North Sea	29- 2-16
	Rohilla	ax. c.	7,400	Ran aground off Whitby, completely wrecked	30-10-14
156	Viknor	ax. c.	5,386	Lost off Irish coast	14- 1-15
	Clan Macnaughton	ax. c.	4,985	Lost in a gale	3- 2-15
157	Bayano	ax. c.	5,948	Probably torpedoed by German sm. in Irish Sea	12- 3-15
159	Ramsey	ax. c.	——	Sunk by German ax. c. Meteor, North Sea	8- 8-15
159	India	ax. c.	7,900	Sunk by German sm., North Sea	10- 8-15
165	Duke of Albany	a. m. v.	1,977	Sunk by German sm., North Sea	24- 8-16
159	Royal Edward	tr.	11,117	Sunk by sm., Ægean Sea	14- 8-15
160	Marquette	tr.	7,057	Sunk by German sm., Ægean Sea	26-10-15
160	Ramazan	tr.	3,477	Sunk by German sm., Ægean Sea	17- 9-15
161	Woodfield	tr.	——	Sunk off coast of Morocco	30-11-15
	Hythe	aux.	201	Collision, Ægean	29-10-15
158	Princess Irene	m. l.	——	Internal explosion off Sheerness	27- 5-15
163	Medusa	m. l.	——		
161	Abbas	c. g.	298	Sunk by German sm. off Sollum Harbor, Egypt	6-11-15
161	Abdel Monaym	c. g.	598	Sunk by German sm. off Sollum Harbor	6-11-15
161	Anglia	h. s.	1,862	Sunk by mine, English Channel	17-11-15
	Fishguard II	tr. s.	——	Foundered in gale, North Sea	17- 9-16
160, 161	Tara	p. b.	6,322	Sunk by German sm., Mediterranean	5-11-15
161	Aries	y.	——		
161	Irene	y.	——		

In addition to the above, the press reports that several other English submarines have been destroyed. The list above includes only those which were apparently officially announced by the British Admiralty.

FRENCH WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
156	Bouvet	b.	12,007	Sunk at the Dardanelles	18- 3-15
157	Leon Gambetta	a. c.	12,352	Torpedoed by Austrian sm., Straits of Otranto	26- 4-15
162	Amiral Charnier	c.	4,702	Torepdoed, Mediterranean	8- 2-16
156	Mousquet	d.	298	Sunk by Emden at Penang	28-10-14
156	Dague	d.	720	Sunk by Austrian mine off Antivari	24- 2-15
	Branlebas	d.	330	Sunk by mine	
162	Renaudin	d.	756	Torpedoed, Adriatic	18- 3-16
164	Fourche	d.	845	Sunk by Austrian sm., St. of Otranto	26?-6-16
164	Fantassin	d.	453	Sunk incident to collision	- 6-16
	Zelée	g. b.	636	Sunk by German cruisers at Tahiti	22- 9-14
	No. 347	t. b.	97	Sunk in collision with each other	9-10-14
	No. 338	t. b.	97		
	——	t. b.	——	Reported lost	- 1-15
	No. 331	t. b.	97	Sunk in collision off Cherbourg	16- 6-15
	No. 219	t. b.	87	Sunk off Nieuport	- 1-15
155	Curie	sm.	392	Sunk by Austrians at Pola	23-12-14
156	Saphir	sm.	386- ?	Sunk at the Dardanelles	15- 1-15
	Joule	sm.	392- ?		
	Calypso	sm.	345-490	Rammed and sunk during maneuvers off Cape Lardier	8- 7-15
159	Mariotte	sm.	522-615	Sunk at the Dardanelles	20- 7-15
160	Turquoise	sm.	386- ?	Sunk in the Sea of Marmora	3-11-15
161	Fresnel	sm.	392- ?	Sunk in the Adriatic by an Austrian ship	5-12-15
162	Provence	ax. c.	18,400	Torpedoed, Mediterranean	26- 2-16
	Indian	ax. c.	800	Sunk by sm. off Rhodes	8- 9-15
	Calvados	tr.	——	Sm., Mediterranean	-11-15
158, 159	Casa Bianca	m. l.	945	Sunk in the Ægean Sea by a mine	3- 6-15
161	Monge		392- ?	Sunk by Austrians, Adriatic	28-12-15

RUSSIAN WARSHIP LOSSES

	Pallada	a. c.	7,775	Sunk by German sm., Baltic	11-10-14
155, 156	Jemtchug	c.	3,130	Sunk by Emden, Penang	28-10-14
	Donnetz	g. b.	1,224	Sunk by Turks, Black Sea. Raised by Russians	31-10-14
	Kubanez	g. b.	1,280	Reported by Turks sunk by Turkish d.	29-10-14
159	Sivutch	g. b.	875	Sunk by Germans, Baltic Sea	20- 8-15
	Kubanetz	g. b.	1,200	By gunfire, Odessa	29-10-14
162	Leit Pushtscheen	t. b.	——	Sunk by mine, Black Sea	10- 3-16
	Putschino	t. b.	——	By gunfire	30-10-14
155	Prut	ax. c.	5,440	Scuttled to avoid capture	29-10-14
	Riasan	tr.	3,522	Captured by Emden	6- 8-14
158	Yenisei	m. l.	2,926	Sunk by German sm., Baltic	4- 6-15
	Oleg	m. l.	1,125	Sunk, Black Sea	24-12-14
	Athos	m. l.	1,743	Sunk, Black Sea	24-12-14
163	Portugal	h. s.	——		

Various German reports state that Russian men-of-war were destroyed in the several minor engagements in the Baltic. These losses were never officially announced by the Russian Admiralty.

JAPANESE WARSHIP LOSSES

	Shirotaye	d.	380	Ran ashore, Tsing Tao	4- 9-14
	No. 33	t. b.	82	Sunk by mines while mine-sweeping off Tsing Tao	11-11-14
	Name unknown	t. b.	——	By mine	
154, 156	Takachiho	tr. s.	3,700	Torpedoed by German d., S-90, off Tsing Tao	17-10-14

In addition to the above, five special service ships were sunk during the operations off Tsing Tao.

ITALIAN WARSHIP LOSSES

165	Leonardo da Vinci	d. b.	22,340	Caught fire and blew up, Taranto harbor	- 8-16
160	Benedetto Brin	b.	13,215	Sunk by internal explosion	28- 9-15
158	Amalfi	a. c.	9,958	Sunk by Austrian sm., Adriatic	7- 7-15
158	Garibaldi	a. c.	7,234	Torpedoed off Ragusa, Austrian sm.	18- 7-15
158	Turbine	d.	325	Scuttled to avoid capture after engagement with Austrian vessels, Adriatic	24- 5-15
164	Citta di Messina	ax. c.	3,495	Sunk by Austrian sm., St. of Otranto	26?-6-16
161	Intrepido	d.	680	Sunk by mine, Adriatic	17-12-15
165	Impetuoso	d.	650	Sunk, Austrian sm., Otranto Straits	10- 7-16
	5-PN	t. b.	118	Torpedoed by Austrian sm. off Venice	26- 6-15
	17-OS	t. b.	118	Sunk by own mine while mine-laying off Salvore	- 7-15
158	Medusa	sm.	241-295	Torpedoed and sunk, Austrian sm.	17- 6-15
	Nereide	sm.	221-315	Sunk by Austrian sm., Adriatic	5- 8-15
165	Giacinto Pullino	sm.	400	Captured by Austria	- 8-16
165	——	sm.	——	Reported missing	- 8-16
161	Re Umberto	tr.	——	Sunk by mine, Adriatic	17-12-15

LOSSES OF GERMANY AND HER ALLIES

GERMAN WARSHIP LOSSES

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
164	Pommern	b.	13,040	Sunk by gunfire, battle of Jutland	31- 5-16
164	Lutzow	b. c.	28,000	Sunk by gunfire, battle of Jutland	1- 6-16
155	Yorck	a. c.	9,350	Sunk by German mine near Wilhelmshaven	3-11-14
155, 156, 158	Scharnhorst	a. c.	11,420	Sunk by English forces off Falklands	8-12-14
155, 156, 158	Gneisenau	a. c.	11,420	Sunk by English forces off Falklands	8-12-14
155	Friederich Karl	a. c.	8,858	No official report. Press reports that she was lost in the Baltic	12-14
156, 163	Bluecher	a. c.	15,550	Sunk by British forces off Doggerbank	24- 1-15
160	Prinz Adalbert	a. c.	8,858	Sunk by British sm. in Baltic	23-10-15
153, 154	Mainz	p. c.	4,280	Sunk by British forces, North Sea	28- 8-14
153, 154	Koeln	p. c.	4,280	Sunk by British forces, North Sea	28- 8-14
153, 154	Ariadne	p. c.	2,618	Sunk by British forces, North Sea	28- 8-14
154, 155	Hela	p. c.	2,003	Sunk by British sm. E-9, North Sea	13- 9-14
153	Augsburg	p. c.	4,280	By gunfire	7- 8-14
154, 155, 156, 163, 164	Emden	p. c.	3,592	Sunk by Australian c. Sydney, Indian Ocean	9-11-14
154, 155, 156, 160	Leipzig	p. c.	3,200	Sunk by English forces off Falklands	8-12-14
155, 156, 158	Nurnberg	p. c.	3,396	Sunk by English forces off Falklands	8-12-14
158	Dresden	p. c.	3,592	Sunk by British cruisers in Pacific	14- 3-15
155, 156, 158, 162	Koenigsberg	p. c.	3,340	Sunk by English forces in Rufiji River	11- 7-15
160, 161	Undine	p. c.	2,672	Sunk by British sm. in the Baltic	7-11-15
161	Bremen	p. c.	3,300	Sunk by sm. in the Baltic	17-12-15
	Friedrich	c. c.	8,865	Interned, Norfolk	7- 4-15
157	Kronprinz Wilhelm	c. c.	14,705	Interned, Norfolk	29- 4-15
155	Berlin	c. c.	17,324	Interned, Norway	16-11-14
	Patagonia	c. c.	——	Seized by Argentina, violation of neutrality	
	Eber	c. c.	1,000	Interned, Bahia	9-14
161	Kormoran II	c. c.	3,508	Interned, Guam	15-12-14
159	—— (two)	l. c.	——	Gulf of Riga	17- 8-15
153	Magdeburg	l. c.	4,478	Ran ashore in fog in Baltic; blown up by own crew after engagement with Russians	27- 8-14
155	Geier	l. c.	1,630	Interned in Honolulu	8-11-14
162	Karlsruhe	l. c.	4,822	No official report as to this vessel's destruction. Press reports state she was blown up by internal explosion while cruising in the Atlantic	11-14
164	Elbing	l. c.	5,000?	Sunk by gunfire, battle of Jutland	1- 6-16
164	Weisbaden	l. c.	5,000?	Sunk by gunfire, battle of Jutland	1- 6-16
164	Rostock	l. c.	4,820	Sunk by gunfire, battle of Jutland	1- 6-16
164	Frauenlob	l. c.	2,650	Sunk by gunfire, battle of Jutland	1- 6-16
	Moewe	g. b.	640	Sunk by her own crew at Dar-es-Salam when English vessels appeared	14- 8-14
	Wissman	g. b.	about 300	Captured by English on Lake Nyasa	20- 8-14
	Planet	g. b.	640	Sunk by her own crew at Yap Island on approach of Japanese fleet	7-10-14
155, 162	Cormoran	g. b.	1,604	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
155, 162	Iltis	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
155, 162	Tiger	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
155, 162	Luchs	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
155, 162	Jaguar	g. b.	886	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
	Tsing-tau	g. b.	168	Interned, China	17- 8-14
	Vaterland	g. b.	168	Interned, China	17- 8-14
154	V-187	d.	689	Sunk by British forces, North Sea	28- 8-14
154	S-115	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-117	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-118	d.	413	Sunk by English destroyers, North Sea	17-10-14
154	S-119	d.	413	Sunk by English destroyers, North Sea	17-10-14
154, 162	S-90	d.	396	Driven ashore and wrecked by own crew off Tsing-Tao after having torpedoed the Japanese ship Takachiho	20-10-14
155	Taku	d.	276	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14

GERMAN WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
155	S-124	d.	463	Accidentally rammed and sunk by a merchant vessel in Baltic	22-11-14
	V-186	d.	750	By gunfire	
	S-106	d.	675	By gunfire	
154	S-126	d.	487	By sm.	6-10-14
159	G-196	d.	689	Sunk by British sm., North Sea	26- 7-15
159	——	l.	——	Announced by France as sunk by two French torpedo-boats off Belgian coast.	22- 8-15
	——	d.	——	Reported sunk by Russians in Baltic	19- 8-15
	——	d.	——	Reported sunk by British sm. E-19 between Denmark and Sweden. Not confirmed	14-10-15
	——	d.	——		
	S-116	b.	477	Sunk by English sm. E-9, North Sea	6-10-14
164	—— (five)	d.	——	Sunk by gunfire, battle of Jutland	1- 6-16
	A-2	t. b.	about 150	Sunk by British destroyers, North Sea	1-15-15
	A-6	t. b.	about 150	Sunk by British destroyers, North Sea	1-15-15
	——	t. b.	——	Officially announced by Russia, blown up by mine	30- 6-15
	——	t. b.	——	Announced by German Admiralty, sunk by mines, Baltic	19- 8-15
	——	t. b.	——	Announced by German Admiralty, sunk by mines, Baltic	19- 8-15
	——	t. b.	——	Sunk by sm., Baltic	17-12-15
159	—— (eight)	t. b.	——	Gulf of Riga	17- 8-15
	——	t. b.	——	Collision, Baltic	15-10-15
153	U-15	sm.	about 450	Sunk by British c. Birmingham	10-10-14
155	U-18	sm.	——	Destroyed by English d. Garry off Scotch coast	23-11-14
160, 161	U-8	sm.	246-295	Sunk by British destroyers	4- 3-15
	U-51	sm.	——	Sunk, Black Sea	17- 7-15
	U-12	sm.	246-295	Rammed and sunk by British d. Ariel	10- 3-15
157	U-29	sm.	——	Announced sunk by British. Loss admitted by German Admiralty	26- 3-15
	U-14	sm.	about 300	Sunk by British forces	8- 6-15
	U-	sm.	——	Officially announced by French sunk in English Channel by French squadron.	4- 7-15
159	U-27	sm.	840-890	Announced by German Admiralty as missing	10- 8-15
	——	sm.	——	Announced by English Admiralty as sunk by British aeroplane off Belgian coast. Denied by Germany	20- 8-15
163	U-35	sm.	——		
	——	sm.	——	Reported run ashore near Riga in Baltic and probably lost. Not confirmed by Germany	19- 8-15
	U-	sm.	——	Interned in Holland. Reported as being the U-8, but this vessel had been officially reported as having been sunk by the British	
	U-	sm.	——	Reported by British Admiralty as sunk by British seaplane off Belgian coast.	27-11-15
156	U-3	sm.	——	Rammed	9- 8-14
	Prince Adalbert	ax. c.	6,030	Captured by British c.	- 8-14
	Sudmark	ax. c.	5,113	Captured by British c.	15- 8-14
153	Hedwick von Kaiser Wilhelm der Grosse	ax. c.	13,952	Sunk by British c. Highflyer	27- 8-14
	Bethania	ax. c.	7,548	Captured by British c.	7- 9-14
	Spreewald	ax. c.	3,899	Captured by British c.	12- 9-14
153	Cap Trafalgar	ax. c.	18,710	Sunk by British ax. c. Carmania	14- 9-14
	Max Brock	ax. c.	4,579	Captured by British c.	- 9-14
159	Itolo	ax. c.	299	Sunk by French g. b. at Cameroon	24- 9-14
	Rhios	ax. c.	150	Sunk by French g. b. at Cameroon	24- 9-14
	Soden	ax. c.	150	Captured by English c. off Cameroon River	1-10-14
	Gneisenau	ax. c.	8,185	Sunk by Belgians prior to evacuation of Antwerp	8-10-14
	Graecia	ax. c.	2,753	Captured by English c.	10-10-14
	Markomannia	ax. c.	4,505	Sunk by British c. in Indian Ocean	16-10-14
	Navarra	ax. c.	5,794	Sunk by English ax. c. in Atlantic	11-11-14
	Greif	ax. c.	——		
	Eleonore Woermann	ax. c.	4,624	Sunk by Australian c. Australia	6- 1-15
158	Macedonia	ax. c.	4,347	Captured	30- 4-15
	——	ax. c.	——	Reported as sunk in the Baltic	- 8-15

GERMAN WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
162	Greif	ax. c.	1,165	Sunk in battle, North Sea	29- 2-16
154	Comet	ax. c.	977	Captured by Australian forces	18-10-14
	Karnac	ax. tr.	4,437	Interned, Chile	-11-14
164	Hermann	ax. c.	3,000	Sunk by Russian destroyers	13- 6-16
153	Königin Luise	m. l.	2,163	Sunk by English d., North Sea	5- 8-14
	Rufin	m. l.	——	Sunk by Germans in Kiao-Chau Bay before surrendering Tsing-Tao to Allies	7-11-14
	——	m. l.	——	Reported by the French captured outside of Havre disguised as French collier	
158, 159	Albatross	m. l.	2,165	Sunk by Russians in Baltic. Reported raised and interned in Sweden	2- 7-15
159	Meteor	m. l.	3,613	Sunk by own crew after attempting to escape British forces, North Sea	8- 8-15
	Bunz	p. b.	——	Lost in Baltic	17-12-15
157	Prinz Eitel				
	Kingani	a. m. v.	——	Captured by the British on Lake Tanganyka	
	Locksun	n. t.	1,020	Interned, Honolulu	8-11-14
158	Ophelia	——	1,153	Captured by English c., North Sea. English claim vessel an ax. c., while Germany claims her a hospital ship	17-10-15
	Several armed trawlers			Sunk by Russian destroyers	13- 6-16

In addition to the above, there seems to be no doubt that a great number of German submarines have been destroyed around the British Isles and possibly also in the Mediterranean and near the Dardanelles. The exact number of German submarines sunk during this war is not known, although the press state this number to be at least 50 and possibly as many as 70.

AUSTRIAN WARSHIP LOSSES

153	Zenta	c.	2,264	Sunk by French fleet off Antivari	16- 8-14
155, 162	Kaiserin Elizabeth	c.	3,937	Sunk by her own crew at Tsing-Tao	7-11-14
161	—— (Novara type)	c.	3,384	Torpedoed	13- 1-16
	——	g. b.	——	Sunk, Adriatic	24- 5-15
	Temes	r. m.	433	Struck a mine and sank off Shabatz	23-10-14
161	Triglav	d.	787	Sunk by gunfire in Adriatic	29-12-15
161	Lika	d.	787	Sunk by mine in Adriatic	29-12-15
153	No. 19	t. b.	78	Struck by a mine and sank at entrance to Pola	18- 8-14
	——	t. b.	——	Sunk by mine in Adriatic	
	——	t. b.	——	Sunk by mine in Adriatic	
	——	sm.	——	Sunk by an Italian d.	17- 5-15
	U-18	sm.	685-860	Reported by France sunk by a French aeroplane, Adriatic	1- 7-15
159	U-12	sm.	——	Torpedoed and sunk by an Italian sm., upper Adriatic	12- 8-15
159	U-3	sm.	233-295	Sunk by French d. Bisson	13- 8-15
	——	sm.	——	Gunfire, French fleet	
	U-11	sm.	860	Sunk by aeroplane	1- 7-15
	——	tr.	5,000	Sunk by Italian warships, Dmazzo roads; loaded with munitions	
	——	tr.	3,000	Sunk by Italian warships, Dmazzo roads, loaded with munitions	
162	Elektra	h. s.	——	Torpedoed, Adriatic	18- 3-16
	Beethoven	tr. s.	——	Struck a mine and foundered	17-12-14

TURKISH WARSHIP LOSSES

155	Messudyeh	b.	10,000	Sunk by British sm. B-11, Dardanelles	14-12-14
	Kheyr-Ed-Din	b.	9,900	Torpedoed by British, Sea of Marmora	9- 8-15
158	Mejidieh	c.	3,330	Sunk by Russian mine, Gulf of Odessa	3- 4-14
161	Burak Reis	g. b.	502	Scuttled to avoid capture	31-10-14
158	Pelenk-I-Derih	g. b.	886	Sunk in Sea of Marmora, British sm.	24- 5-15
	Marmaris	g. b.	492	Sunk by British in Tigris River	1- 6-15
158, 159	Berk-i-Satvet (type)	g. b.	725	By mine near Dardanelles	29- 4-15
161	Issa Reis (type)	g. b.	500	Scuttled	1-11-14
	Doruk Reis	g. b.	502	Officially reported by Petrograd as sunk in Black Sea	10-12-15
	Malatia	g. b.	210	Officially reported by Petrograd as sunk in Black Sea	10-12-15
	Yadikar Nilet	d.	610	Sunk by British sm.	5-15
159	Barbarossa				
159, 161	Yar Hissar	d.	284	Sunk by British sm., Sea of Marmora	3-12-15
	Demir Hissar	t. b.	97	Stranded and interned at Chios	17- 4-15

TURKISH WARSHIP LOSSES—Continued

WHOLE NUMBER	NAME	TYPE	TONNAGE	REMARKS	DATE
157	Dhair Hissar	t. b.	97	Driven ashore, Greece	17- 4-15
	Nagara	tr.	——	Sunk by British sm., Sea of Marmora	- 5-15
158	—— (three)	tr.	——	Sunk by Russian warships; contained troops	
160	Carmen	tr.	4,424	Sm., Marmora	24-10-15
161	Rechid Pasha	tr.	8,000	Sm., Marmora	-12-15
	Bezemialen	tr.	——	Sunk, Black Sea	14-11-14
	Bachriachmar	tr.	——	Sunk, Black Sea	14-11-14
	Midiat Pasha	tr.	——	Sunk by sm.	6- 9-15

In addition to the above, other Turkish men-of-war may have been destroyed around the Dardanelles and in the Black Sea. Reports from England, Russia and Turkey in regard to these operations are so conflicting that it is impossible to accurately state what Turkish vessels have been destroyed, especially transports and supply ships.

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BRITISH VESSELS

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ITALIAN VESSELS

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DIPLOMATIC NOTES

Prepared by A. F. WESTCOTT, PH. D., Instructor, U. S. Naval Academy

NEUTRALS AND THE ENTENTE POWERS

On **July 18** the British Government published a list of foreign business firms with which, under the Trading with the Enemies Act, residents of the United Kingdom are forbidden to trade. The list, which contains in all more than 1500 firms, includes the names of 82 American firms and individuals. Similar lists have been issued by France and Italy.

BRITISH EXPLANATION

The action of the government was explained by the British Foreign Office as follows:

FIRMS BLACKLISTED

LONDON, August 3.

Syren and Shipping, in the course of an article protesting against American criticism of the British blacklist on certain commercial houses, says the total number of blacklisted firms in all countries exceeds 1500, as follows:

Spain, 167; Brazil, 140; Netherlands, 120; Argentina and Uruguay, 95; Morocco, 88; Portuguese East and West Africa, Guinea and Rio Muni, 87; Japan, 86; United States, 85; Norway, 83; Portugal, 79; Sweden, 72; Netherlands and East Indies, 70; Ecuador, 69; Persia, 56; Greece, 50; Philippines, 44; Peru, 41; Chile, 35; Bolivia, 22; Cuba, 10; Central America, 5; Paraguay, 3; Colombia, 1.—*N. Y. Times*, 4/8.

ENGLAND BLACKLISTS 80 CONCERNS HERE; FEW AMERICAN CITIZENS COME UNDER BAN

It will be clear that the policy embodied in the recent act is purely a piece of domestic legislation which only interferes with trade, even in the cases of specified firms, by prohibiting persons domiciled in the United Kingdom from dealing with these firms. It is a consequence simply and solely of the exercise of the right of the state to limit or control, in the interests of the state, the trade relations of its own subjects. As regards the United States' list this may roughly be divided into four classes:

"First—German firms with head offices or control in Germany.

"Second—German firms incorporated in the United States, and therefore technically American entities. We have dealt with these firms on their merits. In these cases something more has been required to qualify them for the statutory list than German nationality, either assisting the enemy by loans, propaganda or in regard to contraband.

"Third—Except in so far as covered by the first or second qualifications, United States citizens as a rule have not been placed on the list. If any are there it is because they are sole agents for enemy firms resident in enemy territory.

"Fourth—When, however, clear abuse of cable facilities has been proved, a firm or individual may be found on the list. By abuse is meant the use of a secret code or of cloaks to cover the fact that cables are being used in a particular interest. In very few such cases will these be found to be United States' citizens."—*N. Y. Times*, 18/7.

On **July 26** The United States despatched to Great Britain an energetic protest against the British trade blacklist, declaring it "inevitably and essentially inconsistent with the rights of the citizens of all neutral nations." The note follows:

THE ACTING SECRETARY OF STATE TO AMBASSADOR W. H. PAGE

DEPARTMENT OF STATE, WASHINGTON, July 26, 1916.

You are instructed to deliver to Sir Edward Grey a formal note on the subject of the Enemy Trading Act, textually as follows:

"The announcement that His Britannic Majesty's Government has placed the names of certain persons, firms, and corporations in the United States upon a proscriptive 'blacklist' and has forbidden all financial or commercial dealings between them and citizens of Great Britain has been received with the most painful surprise by the people and government of the United States, and seems to the government of the United States to embody a policy of arbitrary interference with neutral trade against which it is its duty to protest in the most decided terms.

"The scope and effect of the policy are extraordinary. British steamship companies will not accept cargoes from the proscribed firms or persons or transport their goods to any port, and steamship lines under neutral ownership understand that if they accept freight from them they are likely to be denied coal at British ports and excluded from other privileges which they have usually enjoyed, and may themselves be put upon the blacklist. Neutral bankers refuse loans to those on the list and neutral merchants decline to contract for their goods, fearing a like proscription. It appears that British officials regard the prohibitions of the blacklist as applicable to domestic commercial transactions in foreign countries as well as in Great Britain and her dependencies, for Americans doing business in foreign countries have been put on notice that their dealings with blacklisted firms are to be regarded as subject to veto by the British Government. By the same principle Americans in the United States might be made subject to similar punitive action if they were found dealing with any of their own countrymen whose names had thus been listed.

EFFECTS OF THE BLACKLIST

"The harsh and even disastrous effects of this policy upon the trade of the United States and upon the neutral rights upon which it will not fail to insist are obvious. Upon the list of those proscribed and in effect shut out from the general commerce of the world may be found American concerns which are engaged in large commercial operations as importers of foreign products and materials and as distributors of American products and manufactures to foreign countries and which constitute important channels through which American trade reaches the outside world. Their foreign affiliations may have been fostered for many years, and when once broken cannot easily or promptly be re-established.

"Other concerns may be put upon the list at any time and without notice. It is understood that additions to the proscription may be made 'whenever on account of enemy nationality or enemy association of such persons or bodies of persons it appears to His Majesty expedient to do so.' The possibilities of undeserved injury to American citizens from such measures, arbitrarily taken, and of serious and incalculable interruptions of American trade are without limit.

"It has been stated on behalf of His Majesty's Government that these measures were aimed only at the enemies of Great Britain and would be adopted and enforced with strict regard to the rights of neutrals and with the least possible detriment to neutral trade, but it is evident that they are inevitably and essentially inconsistent with the rights of the citizens of all

the nations not involved in war. The government of the United States begs to remind the government of His Britannic Majesty that citizens of the United States are entirely within their rights in attempting to trade with the people or the governments of any of the nations now at war, subject only to well-defined international practices and understandings which the government of the United States deems the government of Great Britain to have too lightly and too frequently disregarded.

"There are well-known remedies and penalties for breaches of blockade, where the blockade is real and in fact effective, for trade in contraband, for every unneutral act by whomsoever attempted. The government of the United States cannot consent to see those remedies and penalties altered or extended at the will of a single power or group of powers to the injury of its own citizens or in derogation of its own rights. Conspicuous among the principles which the civilized nations of the world have accepted for the safeguarding of the rights of neutrals is the just and honorable principle that neutrals may not be condemned nor their goods confiscated except upon fair adjudication and after an opportunity to be heard in prize courts or elsewhere. Such safeguards the blacklist brushes aside. It condemns without hearing, without notice, and in advance. It is manifestly out of the question that the government of the United States should acquiesce in such methods or applications of punishment to its citizens.

"Whatever may be said with regard to the legality, in the view of international obligation, of the act of Parliament upon which the practice of the blacklist as now employed by His Majesty's Government is understood to be based, the government of the United States is constrained to regard that practice as inconsistent with that true justice, sincere amity, and impartial fairness which should characterize the dealings of friendly governments with one another. The spirit of reciprocal trade between the United States and Great Britain, the privilege long accorded to the nationals of each to come and go with their ships and cargoes, to use each the other's shipping, and be served each by the other's merchants is very seriously impaired by arbitrary and sweeping practices such as this.

"There is no purpose or inclination on the part of the government of the United States to shield American citizens or business houses in any way from the legitimate consequences of unneutral acts or practices; it is quite willing that they should suffer the appropriate penalties which international law and the usage of nations have sanctioned; but His Britannic Majesty's Government cannot expect the government of the United States to consent to see its citizens put upon an ex parte blacklist without calling the attention of His Majesty's Government, in the gravest terms, to the many serious consequences to neutral right and neutral relations which such an act must necessarily involve. It hopes and believes that His Majesty's Government, in its natural absorption in a single pressing object of policy, has acted without a full realization of the many undesired and undesirable results that might ensue.

"POLK, Acting."

MEASURES OF RETALIATION

WASHINGTON, September 5.

A program of retaliation against Great Britain and her allies was provided by the Senate to-day in the form of amendments to the General Revenue Bill. The retaliatory measures which the President is authorized to take are drastic, and a significant thing about the Senate's action is that it was approved in advance by the State Department.

If what was done by the Senate to-day is enacted into law the President, it is contended, will find himself empowered to undertake a policy of non-intercourse. This, it is suggested, will lead to commercial warfare with all that such a warfare may mean to future relations between this government and those of the Entente Allies.

The far-reaching importance of this legislation is fully understood here. Both political parties in the Senate are in accord with respect to it, and it is not doubted, in view of that fact and the additional force it obtains through the approval of the State Department, that it will be accepted by the House, before which it will go in the form of amendments to the revenue measure.

The retaliatory legislation is directed against the British blacklist, the British embargo on the importations of so-called luxuries, including tobacco; the British blockade of neutral ports in northern Europe adjacent to German territory, and British interference with the American mails.—*N. Y. Times*, 7/9.

ENGLAND EXPLAINS MAIL DELAYS

A statement issued by the British Foreign Office in answer to the United States Note of May 24, and received in Washington August 18, is intended to account for delays in the transmission of United States and other neutral mails. In citing the difficulties encountered in examining mails, it is stated that "mail bags marked as dispatched from one neutral country to another neutral country would contain nothing but mails for or from an enemy country; that bags represented as containing printed matter would contain rubber, coffee, jewelry, etc., sometimes disguised as newspapers, as well as correspondence of all kinds, registered and unregistered, or that persons writing to or from enemy countries would already have adopted the practice of sending their letters under cover to intermediaries in neutral countries, or that great numbers of complete sacks appearing to contain merely business circulars from neutral countries would contain in reality nothing but propaganda from Germany under covers bearing neutral postage stamps."

A schedule is enclosed showing the time required to search mails passing between the United States and Denmark and Holland. The schedule indicates that mails are detained in England not more than from two to seven days. (See *N. Y. Times*, 15/8.)

BRITAIN AND SWEDEN IN MAILS CONTROVERSY

LONDON, August 24.

The British Government, following the lead of Sweden, has made public the entire correspondence with Sweden concerning British parcel post with the United States and Swedish retaliation in stopping all English parcels in transit to Russia.

The correspondence discloses that the situation has not yet been satisfactorily adjusted. Some of the letters and notes teem with language so sharp as to indicate that the relations of the two countries at one time approached the breaking point.

As a result of the negotiations Sweden recently released 60,000 parcels to Russia under agreement with the British Government to submit the matter to arbitration after the war. The British Government demanded that traffic across Sweden to Russia be not interfered with again, but Sweden declined this proposition, saying it was not included in the original negotiations, whereupon the British Government withdrew its offer to arbitrate.

The correspondence began last December with the first detention at Kirkwall of mails between Sweden and the United States, going in both directions. Count Wrangel, the Swedish Minister in London, protested against this action, declaring that the British authorities, far from wishing to minimize the difficulties arising out of the war, "find pleasure in increasing them."

Count Wrangel also announced the stoppage of the Russian parcel post until Great Britain should give a guarantee against a repetition of the Kirkwall seizures, which he denounced as "contrary to international law."—*N. Y. Times*, 25/8.

THE BRITISH BLOCKADE SYSTEM

LONDON, July 8.

The most detailed description of the British system of blockade which has been framed was presented to the members of the American Luncheon Club by Sir Frank Newnes, in an address delivered at the last meeting of the club. Sir Frank is a member of the Royal Volunteer Naval Reserve, and is acting as Assistant Secretary of the Committee on Detention of Neutral Ships, presided over by Lord Peel.

His explanation of the system follows:

"Every ship east or west bound passing up or down the English Channel or by the north of Scotland, is stopped by one of the British men-of-war, boarded and examined. These ships are armed merchantmen and are on duty right across from the north of Scotland to Norway, one ship every 20 miles—they are manned by the Royal Naval Reserve men from the mercantile marine who are used to examining ships' papers and documents. A copy of the ships' manifest is then wired up to London—and to give you some idea of the labor involved some ships have between 300 and 600 different descriptions of goods on board, all of which have to be sent out—and thus these telegrams run to many thousands of words. The telegraphed manifest goes at once before the Contraband Committee, which sits every day and all day, presided over by E. M. Pollock, King's Counsel and Member of Parliament for Warwick. The committee considers each item, and if it has any reasonable suspicion that any items are destined for the enemy the ship will be detained and ordered to unload the suspected items at a suitable port. If she has nothing suspicious the ship can proceed at once; and I may say that the Contraband Committee works so expeditiously that its decision on the ship or goods is nearly always given the same day that the manifest is put before it.

"When the manifest is telegraphed to the Contraband Committee it is also telegraphed to the War Trade Intelligence Department, which has been created for the purpose of supplying information on which the Contraband Committee can decide whether certain goods should be allowed to go forward or not.

"In addition to the Contraband Committee there is the Enemy Exports Committee which deals with goods exported from Germany. This is a much simpler task than dealing with imports into Germany, as American and other countries, for the purpose of their customs, already require that the country of origin shall be given, and the effect has been that the export trade of Germany was almost immediately killed, and there is no doubt that this has been one of the great causes in the fall of the mark, as it compels Germany to pay in gold and not in goods.

"When suspect goods are unloaded from a ship they are at once put into 'prize,' and the owner of the goods has to make a claim for their restitution and must bring an action for their recovery. Such actions are tried in the Admiralty Court, which is presided over by Sir Samuel Evans; and the goods are released, condemned, or dealt with as the court may deem just.

"I have already told you that the desire of the British Government is to carry out this blockade with as little delay or inconvenience to neutrals as is possible, and I will now give you some of the arrangements made to insure this:

"(1) Guarantees by importers.

"Agreements have been made with representative associations of merchants in neutral countries, under which they undertake that goods consigned to them will not be exported to Germany nor be used in the manufacture of goods which are for export to Germany. The first of these was the Netherlands Oversea Trust, which was so successful that similar associations were formed in other countries—in Denmark the Danish Merchants' Guild, and in Switzerland the Société Surveillance Suisse.

"Goods can now be exported from this country practically under license only, and such licenses are usually granted if the goods are consigned to these associations.

"(2) Agreements with shipping lines: Agreements have been made with many shipping lines under which their ships are allowed to go forward, even if they have contraband on board or are carrying goods which our authorities suspect are for the enemy, on their undertaking to return such goods to this country for the prize court or to retain them in a neutral country until after the war. And in addition to this:

"(3) Bunker coal from any port in the British Empire is refused to neutral ships unless they comply with certain conditions, which insure that the goods they carry do not go to the enemy.

"Both these classes of ships are called 'White Ships,' and they are a large and increasing number, and most of the leading lines have made such arrangements. I would strongly advise any of you, when shipping goods, to see that the ship is a 'White Ship.' If a ship is not a 'White Ship,' there is of course a presumption that it is or may be carrying suspected goods, and thus it may be delayed and you suffer the suspicion attaching to other people's goods.

"(4) Skinner Scheme—This is a scheme which was suggested by Mr. Skinner, the American Consul General in London. It is this: A department has been opened in the British Embassy at Washington to which an American exporter can go and give particulars of the nature and amount of the goods he desires to export, and also the name of the consignee. The department will at once cable here to the Contraband Committee, who will cable him whether his goods would pass the blockade or not, and thus he can decide whether to ship them. If he ships the goods the papers are marked accordingly, and some American lines will now only take goods which have passed the Skinner scheme.

"(5) Rationing—It has been found that since the war broke out certain neutral countries have been importing a vastly increased amount of certain goods beyond their pre-war and normal requirements, and unless they were formerly importing large quantities of these goods from Germany and Austria there is an overwhelming presumption that they were imported for the purpose of re-export to Germany, and there is no doubt that this was done on a large scale.

"To avoid this the system of rationing has been adopted under which the import of a given article into a neutral country is limited to the amount of its true domestic requirements, it is a very fair system, allowing as it does any neutral to carry on its own legitimate trade and to supply its own wants.

"You will note thus that it may happen that when you apply to the War Trade Department for a license to export certain articles to neutral countries it may be refused not because there is any doubt in regard to your consignee, but for the reason that the country has already been supplied with the rationed amount of such goods."—*N. Y. Times*, 23/7.

OBJECTIONS TO DECLARATION OF LONDON

Commending the action of the Entente Powers in abandoning the Declaration of London, the *Marine Engineer and Naval Architect* (London, August, 1916) takes up the history of the Declaration and outlines the British objections to it as follows:

"The origin of the declaration was a proposal at The Hague Convention of 1907, involving the establishment of an international prize court to take the place of the British prize courts, and it is interesting to note that the British delegates pressed this proposal very strongly and the German plenipotentiary actually moved its adoption. A further proposal that private property except contraband should be exempt from capture at sea was opposed by Great Britain, but not conditionally. Eventually 14 con-

ventions were drawn up and an international naval congress was summoned in London to draw up a code for the international prize court. The following were the main features which, under German influence, were embodied in the declaration:

"1st. That neutral ships could not be condemned if less than half their cargo was contraband.

"2d. That neutral ships could transport enemy troops.

"3d. That neutral ships with false papers, carrying contraband, could escape seizure.

"4th. That commodities such as cotton, rubber, metallic ores, wool and oil-cake could in no case be declared contraband.

"5th. That enemy correspondence carried by neutral ships could not be seized.

"6th. That practically every act of the British Navy was to be submitted to an alien tribunal, and

"7th. That the right of capture was practically abolished by the omission of rules for determining the ownership of goods.

"The provisions when finally settled were included in the Naval Prize Bill which was passed by the House of Commons, but, fortunately for the nation, the bill was thrown out by the Lords in 1911. In August, 1914, an Order in Council was issued putting in force the rejected declaration with certain modifications and additions, and since that time, as the public well know, many proclamations based on the declaration have been issued.

"It may be well to show the unwisdom of the whole proceeding by citing three matters which clearly prove that the declaration was of great convenience to Germany. For instance:

"(1) German and Austrian reservists were allowed free passage in neutral ships to Germany and Austria, until the British Government was forced, by public opinion, to put a stop to this procedure at the end of October, 1914.

"(2) Germany continued to receive consignments of cotton, and it was not until August 22, 1915, that cotton was declared to be absolute contraband.

"(3) German-owned ships were enabled to trade under neutral flags, under Article 57, which altered the prize court law, and this article was not cancelled until the end of October, 1915.

"Under these conditions the fleet continually received new rules and regulations, and in March, 1915, a new code was set up, but owing to it being of a merely permissive nature, bewilderment became more and more evident.

"It has taken 23 months of the most terrible war that the world has ever seen to indicate to the British Government the necessity of putting an end to the state of things which not only fettered the British Navy, but caused grave and increasing anxiety to those members of the British public who saw, day by day, the great advantages accruing to the Central Empires and the disadvantage under which the Allies were carrying on the war owing to the unfortunate conditions set up by the ill-starred procedure under the Declaration of London."

ANGLO-RUSSIAN AGREEMENT WITH PERSIA

PETROGRAD, August 7.

Great Britain and Russia have just concluded an understanding with Persia strengthening the friendly relations between the three countries, according to a dispatch to the semi-official Russian News Agency from Teheran.

"The Ministers of Russia, Great Britain, and Persia," says the correspondent, "yesterday exchanged notes bringing to a conclusion negotiations which had been in progress between the three countries, creating an

entente which definitely strengthens the friendly relations between England, Russia, and Persia.

"A solution mutually favorable to all the parties has been found for questions relating to the financial and military organization of Persia. As regards the military organization, it will be effected in North Persia by the development of the Persian Brigade and in South Persia by the formation of sufficiently strong contingents."—*N. Y. Times*, 8/8.

RUSSIA PROMISED THE DARDANELLES

On the return to Russia of the Parliamentary delegates who had been visiting Allied countries, the statement, reported in dispatches of July 18, which may presumably be accepted as accurate, was made that an agreement had been reached between Russia and her allies, according to which she was to receive at the conclusion of war both sides of the Dardanelles straits. —*N. Y. Nation*, 27/7.

THE "BANGOR" CASE

In a decision rendered in the case of the Norwegian steamer *Bangor*, captured in the Straits of Magellan with coal and stores for German warships, the British Prize Court held that, even granted that the capture occurred in the waters of a neutral state, the legality of the capture could be questioned on this ground only by the neutral state whose waters were violated. The court therefore condemned the ship and her cargo.

The court pointed out that in 1879 the United States Government declared that it would not tolerate exclusive claims by any nation whatsoever to the Straits of Magellan, and would hold responsible any government that undertook, no matter on what pretext, to lay any impost on its commerce through the straits; while in 1881 the Republic of Chile entered into a treaty with the Argentine Republic by which the Straits of Magellan were declared to be neutralized forever, and free navigation was granted to the flags of all nations. The court merely referred to these matters in order to show that there was a right of free passage for commercial purposes, and it was not inconsistent with this that the straits should be regarded as the territorial waters of Chile.—*Shipping Illustrated*, 22/7.

GERMANY

"APPAM" AWARDED TO BRITISH OWNERS

NORFOLK, VA., July 29.

American ports may not be used by belligerent nations as asylum for their prizes of war, according to a far-reaching decision rendered here to-day by Judge Edmund Waddill, Jr., in the United States District Court, who holds that the British steamship *Appam*, which was brought into Norfolk harbor by Lieutenant Hans Berg and a prize crew from the German raider *Möwe*, is still the lawful property of her British owners.

Judge Waddill, in a 15,000-word opinion, directs that the *Appam*, with the cargo remaining aboard her and the proceeds of the perishable part thereof already sold, shall be restored at once to the lawful owners.

Judge Waddill's decision, given after months of consideration, held that the *Appam* lost her status as a prize when she entered American territorial waters to remain indefinitely. He rejected the German contention that the Prussian-American Treaty of 1799 permitted German prizes to be laid up in American waters, and held that prizes could be brought in only by a war vessel acting as convoy, and then only for the temporary causes recognized by international law. An opinion given by Secretary Lansing to the German Ambassador to the same effect was quoted at length by the court.

A decision by a German prize court that the *Appam* was a lawful prize was held to be without effect upon proceedings of the courts of the United

States. The same German court recently adjudged prize money some 750,000 marks in gold, taken from the *Appam* when she was captured off the coast of Spain by the raider *Möwe*.

"The court's conclusion," the decision reads, "is that the manner of bringing the *Appam* into the waters of the United States, as well as her presence in those waters, constitutes a violation of the neutrality of the United States; that she came in without bidding or permission; that she is here in violation of the law; that she is unable to leave for lack of a crew, which she cannot provide or augment without further violation of neutrality; that in her present condition she is without a lawful right to be in and remain in these waters; that she, as between her captors and owners, to all practical interests and purposes, must be treated as abandoned and stranded upon our shores, and that her owners are entitled to restitution of their property, which this country should award irrespective of the prize court proceedings of the Court of the Imperial Government of the German Empire, and it will be so ordered."—*N. Y. Times*, 30/7.

NORFOLK, VA., August 9.

Counsel for the German Government in the case of the prize ship *Appam*, which was awarded to her British owners by a recent decision of Judge Waddill in the United States District Court here, to-day filed a formal petition for appeal to the Supreme Court, which was allowed.—*N. Y. Herald*, 9/8.

EXECUTION OF CAPTAIN FRYATT

BERLIN, July 28.

Captain Charles Fryatt of the Great Eastern Railway steamship *Brussels*, which vessel was captured by German destroyers last month and taken into Zeebrugge, has been executed by shooting after trial before a German naval court-martial. The death sentence was passed upon Captain Fryatt because of his alleged action in attempting previously to ram a German submarine.

Testimony was presented at the court-martial to show that while Captain Fryatt did not belong to the armed forces he had attempted on March 28, 1915, while near the Maas Lightship, to ram the German submarine *U-33*. Captain Fryatt and the first officer and the first engineer of the *Brussels* received from the British Admiralty gold watches for "brave conduct," and were mentioned in the House of Commons.

The submarine *U-33*, according to the official account of the trial, had signaled to the British steamer to show her flag and to stop, but Captain Fryatt did not heed the signal, and, it is alleged, turned at high speed toward the submarine, which escaped only by diving immediately several yards below the surface.

Captain Fryatt, the official statement says, admitted that he had followed the instructions of the British Admiralty. Sentence was confirmed and the captain was executed and shot for a "franc-tireur crime against armed German sea forces." The trial was held at Bruges yesterday.

When captured by German torpedo-boats on June 24, Captain Fryatt was piloting the steamship *Brussels* from Rotterdam to Tilbury. Several German warships dashed out of the naval base at Zeebrugge and escorted the *Brussels* to the Belgian harbor.—*N. Y. Times*, 29/7.

LONDON, August 9.

The Foreign Office made public to-day a letter of Viscount Grey, the Secretary of State for Foreign Affairs, to Irwin B. Laughlin, Charge d'Affaires of the American Embassy, requesting that Ambassador Gerard in Berlin convey to the German Government the British Government's desire to enter a formal protest against the execution of Captain Fryatt of the British steamer *Brussels* by the German authorities in Belgium.

This execution, says Viscount Grey's letter, the British Government "can only describe as the judicial murder of a British subject held a prisoner of war by the German Government, under conditions in direct violation of the law of nations and the usages of war."

Citing the circumstances of the trial and the refusal of facilities to Ambassador Gerard, Viscount Grey says:

"The unseemly haste of the trial and execution is sufficient proof that the German authorities were fully conscious of the unwarrantable nature of their action and were anxious to forestall the legitimate outburst of British indignation, while the fact that the intimation of the execution was conveyed only verbally to Ambassador Gerard can only be interpreted as showing the reluctance of the German Government to bring their proceedings to Ambassador Gerard's knowledge in official form."

Viscount Grey concludes by asking Ambassador Gerard to request the German Foreign Office to provide the full particulars of the whole proceedings.—*N. Y. Times*, 9/8.

"DEUTSCHLAND" A MERCHANT SHIP

WASHINGTON, July 15.

The State Department formally ruled to-day that the German submarine *Deutschland* was an unarmed merchant vessel, and took the position that she was entitled to all the rights and privileges belonging to a merchant vessel flying the flag of a belligerent country in a neutral port. The decision was embraced in the following oral announcement by Mr. Polk, Acting Secretary of State:

"In view of the facts in this particular case, the State Department sees no reason why the *Deutschland* should be considered a war vessel."

Under this ruling the submarine may leave Baltimore at will, as a merchantman, taking her chances of running the gauntlet of the British patrol after leaving the three-mile limit off the Virginia capes. The decision was based on reports made by Collector of Customs Ryan at Baltimore, and Captain Charles F. Hughes of the General Board of the Navy, who inspected the *Deutschland* and reported, that she was a merchant ship and could not be converted into a war vessel or armed except through expensive and extensive structure changes.

A BRITISH OPINION

Criticising the *Deutschland* decision, the *Naval and Military Record* (London, July 20) takes up the question of ownership, as follows:

"Then arose the further question whether she was a public or private ship—in other words, whether she belonged to the German Government or to a group of private individuals. German agents in the United States immediately announced that she was built to the order of a private company, and was being run for private profit. These statements are open to grave suspicion, because it is apparent that vessels of this size and character cannot carry cargoes sufficiently large and valuable to render them commercial propositions. The local American authorities, on evidence the character of which has not been revealed, however, came to the conclusion that the *Deutschland* is an unarmed freight carrier which could not be converted for purposes of offence without extensive structural changes.

"On the other hand, the Allied Governments have decided that the very form and structure of such ships, which enable them to avoid examination and search, remove them from the mercantile class of ships, and that, since they are obviously constructed in avoidance of the requirements of international law, they must be regarded as outside the law and as enemy warships subject to destruction at sight. Apparently the French Government holds this view very strongly.

"The Germans are singularly clumsy in their methods of procedure. The arrival of the *Deutschland* at Baltimore was immediately followed by the news that a German submarine had appeared off the small, undefended port of Seaham harbor and fired 30 rounds of shrapnel from a 3-inch gun, killing one woman and doing some injury to property. This incident has illustrated the illegal use to which submarines can be put, while the voyage of the *Deutschland* has reminded Americans that in time of war they may suffer in a similar manner."

WASHINGTON, September 5.

Secretary Lansing has sent to the Entente Powers a memorandum in the nature of a reply to their recent proposal that all submarines be treated as vessels of war and stating, it is understood, that the United States Government, which has just held the German submarine *Deutschland* a merchant submarine, cannot subscribe to the doctrine that submarine vessels cannot be divided into those which are merchant and those which are war vessels.

The position of the American Government is that the determination of the status of a submarine must be based on consideration of the facts in each individual case, and that the rule of conduct for a neutral government must be the same with respect to this type of vessel that it is for other craft. Submarines may be merchant ships or warships, and their status is determined by the character and purpose of their armament, the ownership of the vessel, and whether they are privately owned or owned by a government and commissioned as part of the naval forces of that government.

In the case of the *Deutschland* this government held that she was a merchant submarine and issued orders permitting the vessel to be cleared as such from Baltimore.—*N. Y. Times*, 6/9.

U-BOAT SINKS ITALIAN LINER

LONDON, August 4.

The Italian mail steamer *Letimbro* has been sunk by a submarine and 28 survivors have arrived at Malta, says a Reuter dispatch from that place. Two boat loads with survivors have also arrived at Syracuse.

The *Letimbro* carried a crew of 57 and her passengers numbered 113. It is believed that a large number of them lost their lives. The passengers included women and children.

Survivors report that a submarine was observed at a distance of about 6000 meters. It fired a warning shot and then gave chase, firing continuously for half an hour. It finally overtook the *Letimbro*, which had begun to lower boats.

"The submarine," adds the dispatch, "continued its bombardment, smashing five boats, the occupants of which perished. Some of the survivors say that many were killed by shellfire."

All of the crew of the Italian brig *Robalio*, torpedoed by an Austrian submarine, have arrived at Malta.—*N. Y. Times*, 4/8.

ATTACK ON THE "OWEGO"

ROTTERDAM, August 23.

According to information here, the American steamer *Owego*, regarding a reported submarine attack on which the American Government has inquired of Germany, arrived at this port on August 13 and reported encountering off the Isle of Wight a German submarine, which fired 10 or 12 shots at her without warning. Some of the shells struck the water very close to her but inflicted no damage.

Captain Barlow of the *Owego*, according to the account given, was at first unable to discern the submarine because of a prevailing haze, but upon

the undersea craft approaching, he sent a boat with the mate and the ship's papers, after examination of which documents the Germans allowed the *Owego* to proceed.

The submarine officers told the mate of the American vessel, the account says, that they fired because the *Owego* did not stop immediately in obedience to flags and signals which they displayed. The signals could not be deciphered from the *Owego*, it is added, owing to the dead calm and the haze.

The *Owego* unloaded at Rotterdam and sailed for America on August 15.

WHITE BOOK DISCLOSURES

The third supplement to the "White Book," issued by the United States Department of State on August 15, gives a more definite official statement of the reasons for the recall of Captain Karl Boy-Ed, Naval Attaché, and Captain Franz von Papen, Military Attaché, of the German Embassy at Washington. A letter from Secretary Lansing to Count von Bernstorff, December 4, 1915, bases the request for the recall of the attachés on their connection "with the illegal and questionable acts of certain persons within the United States." On Count von Bernstorff's request for particulars, the State Department, in a note dated December 10, sharply reiterated its demand.

The supplement also contains correspondence relating to the 14 officers and sailors who have escaped from interned German warships at Norfolk. According to the correspondence, two of these, Dr. Keuger Kroneck and second officer Otto Bauer of the *Eitel Friedrich*, returned to Germany and re-entered active service; two have been caught and returned to the vessels; and one, Lieutenant Otto Koch, was taken by the British from a Danish liner and imprisoned in Edinburgh Castle. Nine remain unaccounted for.

"The incidents related," said Mr. Lansing's note to the German Ambassador, in which on Nov. 16 last he called these escapes to the German Ambassador's attention, "have occurred, notwithstanding the fact that at the time of the internment of these vessels each commanding officer gave a pledge for himself, officers, and crew not to commit any unneutral acts and not to leave the limits prescribed in paroles. I regret to have to inform your excellency that the United States Government regards the actions of these men as contrary to its express instructions and as breaches of the honorable conduct to be expected of officers and men of visiting and interned ships of war of a belligerent nation, and that consequently the government has been forced to discontinue the custom of paroling the interned officers and men on their honor and otherwise to circumscribe the very liberal privileges which they have heretofore been allowed to enjoy."—(See *N. Y. Times*, 18/8.)

ITALY

On **August 27** Italy declared through the Swiss Government that it considered itself, from August 28, at war with Germany.

Italy's formal declaration of war against Germany amounts to little more than official recognition of a state of affairs which already existed. The declaration became inevitable when Italy recently sent troops to Saloniki to cooperate in the campaign of the Entente Allies on the Macedonian front, inasmuch as Germany is directing the opposing forces and has troops on this battle line.

Italy's position in regard to Germany had been an anomalous one after Italy withdrew from the Triple Alliance on May 23 of last year and declared war on Austria.—*N. Y. Times*, 28/7.

ROME, July 15.

Italo-German commercial relations have been broken by Italy, according to the *Giornale d'Italia*, which says to-day that the agreement providing for the mutual respect by the two nations of the rights of each other's subjects has been denounced by the Italian Government.—*N. Y. Times*, 15/7.

ROME, July 21.

A ministerial decree has been issued placing the persons and property of Germans on the same footing as those of Austrians and Hungarians. The decree does not directly mention Germans, but says that allies of Austria are to be treated as enemies and their subjects and goods are liable to sequestration.

Prior to the war German property and interests in Italy were estimated to be worth $250,000,000. Their value is now placed at about $150,000,000. There are only a few German subjects now in Italy, and these will be either placed in concentration camps or sent across the Swiss border.—*N. Y. Times*, 22/7.

BALKAN STATES

Rumania declared war on Austria-Hungary on August 28, acting evidently in co-ordination with Italy, which declared war on Germany on the same date.

RUMANIA JUSTIFIES HER COURSE

A note handed to the Austrian Ambassador on August 28 explains Rumania's motives for entering the war. The note recalls that Rumania's previous adherence to the Triple Alliance was based on the "conservative and defensive character" of this league. When the present war broke out, Rumania, like Italy, refused to support Germany and Austria in hostilities offensive in character and undertaken without the full knowledge of all nations bound by the alliance. With Italy's declaration of war, in the spring of 1915, "the Triple Entente no longer existed, and the reasons which determined Rumania's adherence to this political system disappeared."

Continuing, the note finds justification for war in Austria's treatment of Rumanians within her borders. It concludes as follows:

"For a period of 30 years, the Rumanians of Austria-Hungary not only never saw a reform introduced, but, instead, were treated as an inferior race and condemned to suffer the oppression of a foreign element which constitutes only a minority amidst the diverse nationalities constituting the Austro-Hungarian states.

"All the injustices our brothers thus were made to suffer maintained between our country and the monarchy a continual state of animosity. At the outbreak of the war, Austria-Hungary made no effort to ameliorate these conditions. After two years of the war, Austria-Hungary showed herself as prompt to sacrifice her peoples as she was powerless to defend them. The war, in which almost the whole of Europe is partaking, raises the gravest problems affecting the national development and very existence of the states.

"Rumania, from a desire to hasten the end of the conflict and to safeguard her racial interests, sees herself forced to enter into line by the side of those who are able to assure her realization of her national unity. For these reasons Rumania considers herself, from this moment, in a state of war with Austria-Hungary."—*N. Y. Evening Post*, 29/8.

On **August 31** Bulgaria and Turkey declared war on Rumania, Bulgaria's declaration followed an ultimatum from Rumania demanding the evacuation of Serbian territory and a restoration of the status established by the Treaty of Bucharest.

ALLIED DEMANDS ON GREECE

LONDON, September 4.

Following is the text of the note presented to the Greek Government on Saturday night by the ministers of France and England:

"By order of their governments, the undersigned ministers of France and Great Britain have the honor to bring the following communication to the attention of the Greek Government:

"First—The two Allied governments having from a sure source learned that their enemies receive information in divers ways, and, notably through the agency of the Greek telegraphs, demand the control of the posts and telegraphs, including the wireless system.

"Second—Enemy agents employed in corruption and espionage must immediately leave Greece not to return until the conclusion of hostilities.

"Third—Necessary measures have been taken against such Greek subjects as rendered themselves guilty of complicity in the above-mentioned corruption and espionage."—*N. Y. Times*, 4/9.

DEMANDS ACCEPTED

The demands of the Allies, enforced by the presence of an Allied fleet off the Piræus, have been accepted in their entirety, and the chief German agent in Athens, Baron Schenck, has been arrested by the Allies. Indications are, indeed, that Greece will not long delay in declaring herself in favor of the Allies. Dispatches from Athens on Monday told of an agreement having been reached among parties, by which M. Venizelos and his followers would support the present government of M. Zaimis, to which probably would be added two representatives of the Venizelist party. Later dispatches described the position of M. Zaimis as that of a virtual dictator and declared that Greece's participation in the war depended now on the decision of the Allies.—*N. Y. Nation*, 7/9.

UNITED STATES

PURCHASE OF DANISH WEST INDIES

The treaty for the purchase by the United States of the Danish West Indies was signed on August 4 by Secretary Lansing and the Danish Minister. The treaty is subject to ratification by the United States Senate and by the Danish Parliament. By conservative members of the latter the prospective sale has been the subject of bitter criticism. The price of the islands, as provided in the treaty, is $25,000,000.—*N. Y. Nation*, 10/8.

TREATY HELD UP BY DANISH PARLIAMENT

On August 14 the Danish Folkesthing, or lower house, approved the sale of the Danish West Indies by a vote of 62 to 44. On August 24, however, the Landesthing, or upper house, delayed action by a resolution to the effect that, if the sale could not be postponed until after the war, the question should be settled by a general election.

RATIFIED BY U. S. SENATE

WASHINGTON, September 7.

The Senate this evening, after a debate lasting more than two hours, ratified the treaty between the United States and Denmark for the purchase of the Danish West Indian islands for $25,000,000.

An effort to reduce the purchase price to $10,000,000 was voted down. What appeared to be merely a perfunctory opposition to the treaty was made by Republican senators, led by Clapp, Norris, and Kenyon, all of the Progressive wing of their party.

The treaty was not amended. When the final vote was taken there was no demand for a record roll call.

COPENHAGEN, September 7.

In well-informed circles it is believed here to-night that whatever the result of the political discussion here may be the sale of the West Indian islands to the United States is now assured. Foreign minister Erik Scavenius has scored a tremendous success, as the opposition is now reduced to a grumbling of two or three newspapers which have attacked the government for home political purposes only.—*N. Y. Times*, 8/9.

VALUE OF THE ISLANDS

While the economic and commercial value of these islands to the United States is not at all vital, their strategic importance is; and that for three reasons:

1. The satisfactory settlement of the problem of mixed sovereignties in the West Indies. With the acquirement of the Danish islands, all lands this side of the Anegada Passage would be either independent, American, or British.

2. An end to the continual menace of German or other great power aggression, which the holding by a weak state of strategically located islands must ever invite.

3. A naval base in the West Indies better in all respects than ours at Guantanamo.

The price of $25,000,000, now reported as agreed upon, seems incredible. It is five times as much as that agreed upon 14 years ago. During that period, however, so it is reported, the Danish Government granted a concession in St. Thomas which permitted the organization of a stock company and the selling of its stock to whosoever wished to buy. The report adds that the stock was bought largely by Germans; that the company's privileges will eventually operate to give Germany control of the harbor of Charlotte Amalie, while placing the responsibility for its protection upon the Danish Government; that, in the event of international complications, little Denmark would be unable to give such protection; and that the result of an attempt by Germany to protect the interests of her citizens in St. Thomas would result in an awkward situation both for Denmark and for the United States.—*Outlook*, 9/7.

MEXICO COMMISSION NAMED

The names of the three American members of the International Joint Commission created to compose the differences existing between the American and Mexican governments were given out by Secretary Lansing on August 23. They are: Franklin K. Lane, Secretary of the Interior; George Gray, of Wilmington, Del., former member of the judiciary and until recently Judge of the Third Judicial Circuit, and Dr. John R. Mott, of New York, general secretary of the International Committee of Young

Men's Christian Associations. To make the record complete we give the names of the Mexican members, which were announced several weeks ago: Luis Cabrera, Minister of Finance in Carranza's Cabinet; Alberto Pani, President of the Mexican National Railways, and Ignacio Bonillas, Sub-Secretary in the Mexican Department of Communications.—*N. Y. Nation*, 31/8.

FAR EAST

CHINESE LOAN FAILS

WASHINGTON, August 3.

The State Department cabled to the American Legation in Peking to-day a statement that the department had been unable to arrange the loan which China had asked the department to obtain from American banking houses. The message gave a summary of the reasons advanced by J. P. Morgan & Co., Kuhn, Loeb & Co., the National City Bank and the First National Bank, all of New York, constituting the American group in the original six-power Chinese loan, for their attitude in the matter.

It was set forth by the State Department that the American group of bankers felt that it would be unwise to invest in any more foreign securities at this time when the American market had all it could handle. It was recited that Chinese Government railroad securities were now down to 72 in the United States, and the prospect of floating an additional loan was not good. For these and other reasons the American group felt it could not engage to handle a new loan for the Chinese Government even of a comparatively small amount.

GOVERNMENT GUARANTEE DESIRED

Underlying the conservative attitude of the American bankers has been the apparent fear that the action of the United States, in March, 1913, in refusing to be a party to guaranteeing the participation of the American group in the six-power loan, would continue to be applied to any additional loan to China, even when arranged at the instance of the State Department. —*N. Y. Times*, 4/8.

JAPANESE OFFERS

PEKING, September 1.

Being unable to obtain funds in the United States, Chinese officials are unwillingly responding to overtures from Japan to lend $30,000,000 or a larger amount. The money is needed immediately, for China's financial situation is a desperate one. The indications are that Japan's assistance will be accepted within a fortnight.

Great Britain, France, and Russia will participate in the Japanese loan. The salt monopoly surplus probably will be the security.—*N. Y. Times*, 2/9.

CHINESE ATTACK JAPANESE GARRISON

TOKIO, August 15.

Chinese troops have attacked the Japanese garrison at Cheng-Chiatun, between Mukden and Chaoyangfu, have killed or wounded 17 Japanese soldiers and killed one officer. According to official advices from Cheng-Chiatun, the Japanese barracks is now besieged by the Chinese soldiers.

Reinforcements are being rushed to the beleaguered garrison from the Japanese forces stationed at Kaiyuan and Sudinghai. The fighting resulted from the arrest of a Japanese merchant.

Cheng-Chiatun, where a Japanese garrison is reported besieged by Chinese troops, is near the line of the Harbin-Changchun Railway, which news dis-

patches stated had been sold to Japan by Russia under the recent Russo-Japanese treaty. Cheng-Chiatun is also in the neighborhood of the Sungari River. Japanese rights on this river are said to have been recognized by Russia, the question having been in dispute since the signing of the Portsmouth treaty.

TOKIO, September 5.

Another clash between Chinese and Japanese troops is officially reported from Chaoyangpo, Mongolia, and has led to the dispatch of heavy Japanese reinforcements.

It is said that the Chinese attacked the Japanese while the Japanese were advancing to mediate between Chinese and Mongolians.—*N. Y. Times*, 5/9.

JAPANESE DEMANDS ON CHINA

WASHINGTON, September 5.

Sweeping demands, far more drastic than any published summaries have indicated, are revealed in the secret terms being pressed on China by Japan as a result of the recent armed conflict between soldiers of the two nations at Cheng-Chiatun, in Inner Mongolia. Private dispatches received here to-day reveal that Japan seeks indemnities, an apology, and political concessions throughout the whole region of Inner Mongolia and South Manchuria.

The four formal demands are quoted as follows:

"1. Punishment of the commanding Chinese officer involved in the trouble.

"2. Dismissal, with punishment, of the other officers involved.

"3. Instructions to Chinese troops in Inner Mongolia and South Manchuria not to interfere in any way with Japanese troops or civilians, and to publish this fact broadly.

"4. Recognition of 'special interests' for Japan in Inner Mongolia and South Manchuria, comprising powers of police and administration, preference in loans, and in the selection of all foreign advisers, etc."

Besides the four "demands" are four "concessions" which China is asked to grant to Japan without formal demand, as follows:

"1. The Chinese Army in Southern Manchuria and Eastern Mongolia to employ Japanese military advisers.

"2. Chinese schools and colleges to have Japanese military inspectors. This is not limited to any region in dispatches so far received.

"3. A formal apology in person from the Chinese Governor of Mukden to the Japanese Governor at Dairen and the Japanese Consul at Mukden for the Cheng-Chiatun trouble.

"4. Monetary compensation to the families of the Japanese killed, the amounts to be settled by later negotiation."

Secretary Lansing refused to-night to comment on the dispatches or to outline what might be the attitude of the American Government. It is known, however, that steps will be taken immediately by the State Department to obtain detailed reports and learn the full significance of Japan's act. American interests seem at first glance to be more deeply involved than in any event in the Far East since Japan's famous ultimatum to China of May, 1915.

At most Japan had been expected not to demand the extension to inner Mongolia of rights already secured in South Manchuria. Instead, it is pointed out, she seeks more than she has ever before demanded in this district, and besides asking full reparation for the specific difficulty, she has made it the basis for demanding political rights which are interpreted in Peking as destroying China's sovereignty in that whole enormous region.

Special attention is attracted here to the demand for a formal apology in person from the Chinese Governor in Mukden to the Japanese Governor at Dairen and the Japanese Consul at Mukden. This would require the Chinese official to humiliate his government by going into Japanese territory.

But it is the political articles which cause deepest anxiety to Washington officials. They were omitted entirely in the published demands. The recognition of "special rights" is open to the most extreme interpretation, and, it is feared, may cut directly across the American policy regarding the integrity of China. Also it has in it possibilities of violation of the open door policy and the making of the whole vast region involved a mere dependency of Japan.

Article 3 of the "demands" places Japanese soldiers and troops in this Chinese territory entirely above the control of Chinese soldiers, virtually annulling China's sovereignty there. Japanese have already won the right to their own courts and in many places their own police.—*N. Y. Times*, 6/9.

REVIEW OF BOOKS
ON
SUBJECTS OF PROFESSIONAL INTEREST

"Fore-Armed. How to Build a Citizen Army." By Granville Fortesque. (Philadelphia, The John C. Winston Co., 1916.)

In the first half of this book Captain Fortesque devotes five chapters to the military systems of Switzerland, Germany, France, Australia, and England. He then takes up "The New Era in Warfare," "The Strategic Position of the United States," "The Instinct of Defence," and finally advocates measures for American military organization in the chapter "What Shall We Do?"

His purpose is to explain in a clear and convincing way those principles and details of foreign military systems which are of direct interest to American thinkers on the subject of preparedness; to call attention sharply to the revolutionary changes in warfare which have made and will continue to make unprecedented demands upon the organization, skill, and resources of the United States; to drive home the fact that the Panama Canal is the "Achilles heel" of our strategic frontiers, and that besides Alaska and our island possessions in the Pacific, "The United States, because of the Monroe Doctrine, is liable to attack at any part of the Atlantic side of the Western Hemisphere, from Portland, Maine, to Punta Arenas, Patagonia;" to tear apart the sophistries of the pacifists and "anti-militarists;" and to propose the general principles which should be followed in creating an American Army to represent the huge man-power of the United States.

Emphasis is laid upon the super-patriotism of the Swiss, their physique, due to the fact that "you cannot live in Switzerland without taking exercise," their marksmanship as a nation ("The prize winners in the shooting contests fill the same niche in the Swiss boy's heart-shrine as Christy Mathewson does with American youth"), the fact that "armory drill is scorned, and all instruction is conducted out of doors, under actual field service conditions," and that there are "only 142 days of actual training" to build up, from a population of 4,000,000, an army of 500,000 men, at a cost of only $7,000,000 a year. Admitting that the "German Army organization surpasses all others," partly owing to the manner in which the government controls German railroads, the author points out, nevertheless, that Germany is afflicted by the curse of "militarism gone mad," and says, "the essential fault of the soldier, vanity, has been emphasized and developed until it has become a national disease." "That such an enormous and complex organization" as the German Army "can be financed for the sum of $217,000,000 is the most important lesson to be learned from

Germany." In contrast with Germany, and even more valuable as a lesson to the United States, is "the *completely democratic* army of France." "By way of parenthesis," writes Fortesque, "my opinion is that our own home-grown fighting force might be more representative if encouragement were freely given the American private soldier to aspire after a general's stars." The account of Australia's development of an efficient fighting force in recent years, under conditions very similar to those in the United States, is of the utmost interest, and the criticism of England's military policy—nearest like that of the United States—is highly significant.

In the concluding chapter the author suggests that "every plan of national defence must proceed from a discussion of the size of the navy," that "unwisely the national legislators have never fully accepted the recommendations of the Naval Board." Granted that "on the Atlantic coast the United States possesses at all times a fleet superior in speed and guns to the German fleet," and "on the Pacific seaboard ships greater in number and more efficient than those of Japan," an army of "250,000 would be sufficient," providing the reserves were adequate. "It is to be regretted that the regular organization of the United States is a mercenary force." "The day of the mercenary soldier is past." "To depend upon hireling troops to repel invasion makes the average citizen shirk the whole question of individual defensive duty." "The army is the only 'business' in the United States that does not offer encouraging chances of advancement from the bottom up." "Let it be made a rule that all graduates of West Point serve a specified time in the ranks before being commissioned, and also make provision for helping the enlisted men to seek advancement in the service." "The author is firmly of the opinion that universal service is the only democratic and logical solution of the problem." "Let the National Guard and the militia be the third-line force corresponding to the *Landsturm* or home guard in foreign armies, under federal control." "The second line should be a Federal Reserve of at least 500,000 men." Such are the views of Captain Fortesque, which suggest only in a general way the soundness of his recommendations, and the well-informed way in which he handles a difficult problem. The book is notable throughout for its calmness of tone, its evidence of the author's sense of humor, his refreshing frankness, and his common sense. H. C. W.

"The Monroe Doctrine: An Interpretation." By Albert Bushnell Hart. 403 pages. $1.75. (Boston, Little Brown & Co., 1916.)

"Modernizing the Monroe Doctrine." By Charles H. Sherrill, ex-minister to Argentina. 203 pages. $1.25. (Boston, Houghton Mifflin, 1916.)

"The Challenge of the Future." By Roland G. Usher. $1.75. (Boston, Houghton Mifflin, 1916.)

These volumes may be taken as representative of a large number of studies called forth by the increased interest of Americans in problems of foreign affairs. Written by competent authorities, they are important not only as formative influences on public opinion, but also as the means by which foreigners will infer the trend of sentiment in the United States.

Professor Hart gives an excellent survey of the origin and development of the Monroe Doctrine, a survey which necessarily includes nearly every phase of our past foreign policy. Ex-minister Sherrill's book is shorter and narrower in scope, an appeal for more friendly relations with South America and more intelligent methods of developing trade. *The Challenge of the Future* submits a very positive and radical program, including alliance with Great Britain, renunciation of the Monroe Doctrine, the strong hand in Mexico, and the Pacific conceded to Japan.

Of particular interest are the views of these writers on our future policy regarding the other nations of the New World. Professor Hart and Professor Usher agree in emphasizing the difficulties of a Pan-American "entente." They point out that the bond of common interests which has long been assumed between North and South America is in truth almost as tenuous and unreal as the fiction of their geographic unity. The ports on the southeastern coast of South America are nearer to southern Europe than they are to United States. The natural market for their raw material is Europe, and the laws of trade incline them to take European goods in exchange. European capital has long been employed in developing the country. The nations to the south of us are the offspring of Spain and Portugal; their traditions and ideals are Latin rather than Anglo-Saxon. Politically, also, we have more in common with the democracies of France and Great Britain than with the turbulent and unstable dictatorships that prevail in many of the southern republics.

These arguments, it is true, are based on past conditions, and on the dangerous assumption that past conditions are unchangeable. The best service rendered by Mr. Sherrill's book is that it points out the folly of our past attitude of condescension or indifference, and shows how much may be done and already has been done to bring the United States and the rapidly growing republics of Argentina, Brazil, and Chili to a better mutual understanding. The A B C mediation in 1914, the establishment of branch banks in five of the chief commercial cities of South America, the sessions of Pan-American Congresses, the activities of the Pan-American Union and the impulse toward closer diplomatic and commercial relations due to the European War—all these are potent influences tending to draw the two continents closer together.

There is every motive for the cultivation of such friendly relations, and good reason to hope for their improvement, yet the fact remains that our present Pan-American policy, if it may be so called, is by no means unobtrusive, unambitious, or unlikely to involve us in difficulties. Geographical proximity, to quote Professor Hart, undoubtedly justifies us in asserting a paramount interest in the West Indies and the continent north of Panama. South of that line our claims are open to question. If we maintain them, and attempt a virtual protectorate over countries as far distant as Europe, without concerning ourselves greatly over their consent or cooperation, then there can no longer be any question of our avoiding foreign entanglements. We are thus definitely committed to an active and aggressive part in world affairs. A. F. W.

"Why Preparedness." By Captain Henry J. Reilly. (Philadelphia, Daughaday and Co.)

The author of this book, formerly an officer in the U. S. Army, and now a war correspondent, had exceptional opportunities for observing the European countries, their people, and their armies shortly after the war began, and has evidently made excellent use of his opportunities.

He went to France from Manila at the beginning of the war, while the *Emden* was still at large; was in Paris and London during September, 1914; in France the rest of that year; and in Germany and Austria during the summer of 1915. He has described the people, military and non-military, with whom he came in contact, their attitude toward the war, and preparation for it, the armies, and army systems of each country, their organizations, and methods of maintaining and training their armies in times of peace, and their real state of preparedness—or lack of it—as tested by the way the preparations actually worked out in the war.

The author also includes a description on "Swiss Preparedness," and an excellent account of "Modern Battle," the methods of conducting it, and the uses made of the various arms and implements, new and old.

The book is an excellent exposition of the necessity of carefully studied and planned preparedness for a nation that may be involved in land warfare, and of the tremendous cost of the lack of it, or of having it poorly done; based on the actual experience of the countries now at war.

The lessons this country should learn from the war are clearly pointed out.

The book treats entirely of land operations, and no attempt is made to show the effect of naval operations of the war. G. S. L.

"The Principles of Constitutional Government." By Frank J. Goodnow. (New York, Harper & Brothers.)

This book, by the president of The Johns Hopkins University, is largely based on lectures delivered at Peking University while the author was constitutional adviser to the government of China. Inasmuch as his hearers were largely ignorant of the meaning of constitutional government, the discussion is elementary and suited to the general reader. While the author's criticism of the American constitution will interest the American reader, the book will also be stimulating to those who have observed some of the difficulties experienced by Latin-Americans in achieving constitutional government for themselves.

Dr. Goodnow's treatment is eminently sane and cautious, and fully recognizes the difficulties of constitutional government for peoples without the Anglo-Saxon training in self-government and with varying economic conditions. But he sketches the principles which have determined actual constitutional governments and compares and contrasts these various English, American, and Continental ideas. We thus have before us the experience of the last century and a half and see the progress that has been made. His conclusions are limited, as was fitting considering his hearers,

to the essential features which will give such untrained peoples a stable government and one at the same time flexible enough to allow for future development.

In particular, the author believes that a written constitution is preferable to one unwritten but that it should be more easily amended than the constitution of the United States. He commends that of the South African Union because it gives greater power to the central government by not limiting the latter to enumerated powers. This, he thinks, would obviate the need of judicial interpretation. He favors the election of a president by the legislature according to the French system in order to avoid the disorder likely to arise on such occasions; he believes in a legislature of two houses, universal suffrage, with provisions, however, for minority and sectional representation by some such scheme as proportional representation or plural voting, and election laws that allow secret voting, and prevent illegal voting, dishonest counting, and illegitimate use of money, all secured by judicial procedure. He also believes that a judiciary independent of the executive is essential, and that, unlike the United States, where the citizen cannot sue the government, these courts should protect the individual against the government and its officers as well as decide cases between citizens. The statement of private rights such as is contained in the first ten amendments to the constitution of the United States, is not desirable, he thinks, since their meaning ought to change with time, but he suggests that, as in England, the citizen should be assured that he has in courts independent of the executive processes, such as habeas corpus, by which any invasion of individual liberty can be prevented. Lastly, in three admirable chapters, Dr. Goodnow describes local government in England, America, and Continental Europe, and shows that considerable participation in local government is necessary to train the citizens for the larger affairs of the nation. He believes it is immaterial whether a presidential or cabinet system be used so long as there is strong executive power, and definite responsibility, and no possibility of long conflict between the executive and the legislature.

These conclusions are developed from sketches of constitutional government in the United States, Canada, Australia, and South Africa, and from other chapters dealing with such topics as the executive power, the bicameral system, term and tenure of executive, the lower house, the suffrage, the courts, and the conception of private rights in England, America, and Continental Europe. W. B. N.

"Zeppelins and Super-Zeppelins." By R. P. Hearne. (New York, John Lane Company.)

"Zeppelins and Super-Zeppelins," by R. P. Hearne, author of "Air-Ships in Peace and War," with 25 illustrations, contains an up-to-date view of the employment of Zeppelins in warfare and gives a general notion of the principles of construction and operation.

The work is in popular form and demonstrates that, although the Zeppelins have produced but little damage directly to works of military value,

they indirectly have caused considerable losses, and their employment by Germany has accomplished a real military point in requiring the diversion of men and other military resources toward the guarding of England against air attacks. The author states "When the Zeppelins came to London they would have scored a galling technical triumph over us if they had only showered down confetti."

The understanding and use of weather reports is shown to be a very important factor, and it also appears that many years before the present war Germany had made extensive preparation to avail herself of this important information.

Although the Zeppelin's offensive capacity may be considered as 50 days per annum, it is, nevertheless, necessary to keep the defensive ready for the full 365 days a year. Apparently the thing that hurts the author most is that Germany has a means of attack which the English do not possess. It appears that more damage has resulted from congested traffic in large cities, caused by its being confined to daylight hours, than that due to any direct effects of Zeppelin attacks. He clearly shows that full protection cannot be given against aerial attack by any possible system of land defence and that an aerial force is necessary for every nation, even if it is required to act on the defensive only. A fixed and purely defensive system, such as that provided by guns and searchlights, is the most costly and least effective mode of fighting an aerial enemy. At best, it can only beat him off or scare him away from a few places.

The idea that the best defence is a highly developed and vigorous offensive is shown to be more important in aerial warfare than in any other branch of the service.

The author finally comes to the conclusion that to fight Zeppelins it is imperative that the attacked nation should have Zeppelins, and, if the decisive victory is required, it is necessary to have super-Zeppelins. The use of aeroplanes for this purpose is unsatisfactory because they have to keep in motion in order to stay aloft, and particularly because of the great hazard encountered in landing at night. The author also comes to the same conclusion as Lanchester and considers that it is absolutely essential that an air service independent of the army and navy, should be established.

H. C. R.

"The Marine Steam Turbine." By J. W. M. Sothern. Fourth edition. (London, Crosby, Lockwood and Son, 7 Stationer's Hall Court.)

The fourth edition of this well-known manual of the steam turbine has been increased in size over former editions by the addition of eleven new sections. By this addition, the book now covers thoroughly the Parsons, Curtis, and Parsons combined turbines. The text is profusely illustrated by excellent cuts which include views of complete turbines and show clearly the details of construction. British and European practice principally is described. The latest U. S. installations described are those of the destroyers *Sterret* and *Perkins*. The section on condensers and auxiliaries

describes only machinery of Weir design. Under sections on general turbine data and data from actual practice is included much valuable information for the designer. Besides the subjects mentioned, the following are covered each by a section: temperature-entropy diagram, geared-down turbines, practical operation of turbine machinery, shaft horsepower, oil fuel, and boilers. While this book is comprehensive in its description of the principal types of turbines now in use, the arrangement of subjects is not of the best and could well be improved by a complete revision using the material the book contains. It may be safely said that this is the first book on turbines to be published that will give a "clear understanding of the subject to the reader devoid of engineering knowledge."

G. J. M.

"L' A B C de la Guerre Navale." By Raymond Lestonnat, 32 planches hors texte; 213 pp.; 4 fr. (Paris, Librairie Delagrave.)

As a primer of naval warfare, "L' A B C" must have been written for precocious youngsters. It is true that the author does take up the elements of naval development, but even as he finds the beginning of things in the discovery by a savage—whose policy is to cross a stream—that a tree trunk will float a man, so also does he follow through to the immense construction program of Great Britain, bent on maintaining her policy of a two power standard. The technical French which appears in portions of the book makes one think at times more of the X Y Z of the unknown than of the A B C. Withal, the book is interesting and well worth while from any point of view. Beginning with the evolution of navies and a demonstration that capital ships must form the backbone of any fleet, despite the changes rendered necessary by the building of air vessels and submarines, the author proceeds to discuss the various tactical, strategic and logistic elements which govern the characteristics of vessels—armament, protection, speed, radius of action, etc. After a short discussion of bases of operation, types of vessels are taken up together with an analysis of the elements which determine their characteristics. A distinct diversion in trend of thought occurs in the middle of the book where, after a chapter on the "Engagement," two chapters, entitled "Le Redoubtable a Trafalgar" and "Le Kniaz Souvarov a Tsushima," are inserted. The former contains a quoted report of Captaine de Vaisseau Lucas and the latter of Le Commandante Semenoff; they are intimate and fascinating descriptions of battle conditions in 1805 and 1905, respectively. Short articles on "Forcing of Passages," "Privateering" and "Blockading" are followed by an historical study of the features which have determined the policies of all great maritime nations and an account of their resulting fleet building policies. A curious mistake occurs in the author's discussion of "Radius of Action," when he states that the *Oregon* could not have made her remarkable passage from California to the Antilles without being accompanied by a collier of great tonnage, the *Marietta*. The error, however, does not affect the argument.

J. W. G.

"Sous-Marins et Submersibles." Leur developpement; leur role dans la guerre; leur role dans l'avenir; les sous-marins allemands. 24 dessins-24 photographies-104 pages. par M. Laubeuf, Ancien ingenieur en chef de la Marine. 3 fr. 50. (Paris, Librairie Delagrave.)

"Sous-marins et Submersibles" takes up first of all historical and technical development of submarines and submersibles. The distinction of the two types, commonly disregarded, is treated in detail by the author under three headings: Method of construction, percentage floatability, and form of the hull. The late sea-going types, which carry the water-ballast outside a cigar-shaped hull, which have from 30 to 40 per cent of volume above the surface in the light condition, and have hulls with lines like destroyers for high surface speeds, are of course characterized as submersibles. This little book covers all types of all nations though the details of the latest types being unavailable in case of enemy and censored in case of friendly powers are omitted. After development, the author enters the field policy and takes up in order: importance of submarines for small nations; increase in the size of submarines; coast-defence and fleet submarines; accidents; efficacy. In an appendix the rôle of the German submarines in the war is discussed. This discussion includes submarine warfare, strategy, international law applications, types of offensive action possible to submarines, defence against submarines and modes of warfare against submarines. The book is attractively readable and has the merit of inducing one to "read in the original," though the "original" habit is one which most of us have classified under the head of "good intentions."

J. W. G.

"The Sailor." By J. C. Snaith. (New York, D. Appleton and Company, 1916.)

The latest evidence of Mr. Snaith's versatility and power is not, as the title might indicate, a sea story, but the story of a man whose character is moulded by his early life at sea. Nevertheless, it is safe to say that the reader will not forget the old windjammer *Margaret Carey*, the typhoon, or what befell off the Island of San Pedro. Those who know the ways of the sea, and who believe, not without reason, that sea-going has been the making of many a man, will not read with an unquickened pulse how the forsaken waif 'Enry 'Arper slaved before the mast for six long and grinding years under Mr. Thompson and the "Old Man."

"A romance of the growth and struggles of a boy from squalor and ignorance to education and fame through his association with the sea. A novel of the building of a man's character." This is what the book purports to be. The word "romance," however, except in a limited and technical sense, is misleading and unfair to the merits of the story. For one thing, the heroine makes her first appearance at page 336; and besides, Mary Pridmore is much too charming to deserve the epithet "heroine." Moreover, the career of Henry Harper is too nearly a chunk out of human life to seem romantic. So convincing is each heartbreaking step up the heights, from the filthiest gutter to greatness, that the true romance is almost

an after thought; the happy ending is won after such gruelling struggles, and is so improbable until the last convincing moment, that it comes as a welcome support to one's optimism.

"The Sailor" is more than a book; it is an inspiration. Built on the doctrine and faith that a man is the captain of his soul, it shatters, one after another, the reader's doubts and misgivings concerning the hero's chances of attaining his ambition. In Harper's relentless if often discouraging and forlorn battling with his apparently hopeless destiny, he wins through the darkest hours by a determination so thoroughly fixed that it remains firm even when battered into the realm of subconsciousness. A quenchless spark of ambition, ambition which gradually grows from the mere desire to exist, to the striving to become a great man, leads the boy to "keep on keeping on." Even when he has conquered what would seem victory to most men, he will not forego his ultimate triumph, the winning of the woman who was "unattainable." The spark comes very near to extinction, and the sailor close to death, but he "keeps on keeping on."

Several of the other characters are well drawn: "Auntie," the sinister drab, "breathing gin and wickedness," whose heavy carter's whip lashes 'Enry "with a scream not human" forth into the great world; "Mother," the wife of the Foreman Shunter; "Klondyke," otherwise Jack Pridmore, worth while if he were the only character in the story; "Ginger," whom the gods sent; Mary Pridmore, to be known but not described; Cora, to be described but not known; and the wonderful Edward Ambrose. The story could not be written without "Klondyke"—a creation—the "black sheep of his family," who was "a *white* man from way back," and who tells 'Enry that "the Bible is a damned good book to read." Nor is it lacking in significance that Klondyke's strong right arm helped The Sailor, at two great periods in his life, to "keep on keeping on."

H. C. W.

NOTICE

The U. S. Naval Institute was established in 1873, having for its object the advancement of professional and scientific knowledge in the Navy. It is now in its forty-third year of existence, trusting as heretofore for its support to the officers and friends of the Navy. The members of the Board of Control cordially invite the co-operation and aid of their brother officers and others interested in the Navy, in furtherance of the aims of the Institute, by the contribution of papers and communications upon subjects of interest to the naval profession, as well as by personal support and influence.

On the subject of membership the Constitution reads as follows:

ARTICLE VII

Sec. 1. The Institute shall consist of regular, life, honorary, and associate members.

Sec. 2. Officers of the Navy, Marine Corps, and all civil officers attached to the Naval Service, shall be entitled to become regular or life members, without ballot, on payment of dues or fees to the Secretary and Treasurer. Members who resign from the Navy subsequent to joining the Institute will be regarded as belonging to the class described in this Section.

Sec. 3. The Prize Essayist of each year shall be a life member without payment of fee.

Sec. 4. Honorary members shall be selected from distinguished Naval and Military Officers, and from eminent men of learning in civil life. The Secretary of the Navy shall be, *ex officio*, an honorary member. Their number shall not exceed thirty (30). Nominations for honorary members must be favorably reported by the Board of Control, and a vote equal to one-half the number of regular and life members, given by proxy or presence, shall be cast, a majority electing.

Sec. 5. Associate members shall be elected from Officers of the Army, Revenue Cutter Service, foreign officers of the Naval and Military professions, and from persons in civil life who may be interested in the purposes of the Institute.

Sec. 6. Those entitled to become associate members may be elected life members, provided that the number not officially connected with the Navy and Marine Corps shall not at any time exceed one hundred (100).

Sec. 7. Associate members and life members, other than those entitled to regular membership, shall be elected as follows: "Nominations shall be made in writing to the Secretary and Treasurer, with the name of the member making them, and such nominations shall be submitted to the Board of Control, and, if their report be favorable, the Secretary and Treasurer shall make known the result at the next meeting of the Institute, and a vote shall then be taken, a majority of votes cast by members present electing."

Sec. 8. The annual dues for regular and associate members shall be two dollars, all of which shall be for a year's subscription to the UNITED STATES NAVAL INSTITUTE PROCEEDINGS, payable upon joining the Institute, and upon the first day of each succeeding January. The fee for life membership shall be thirty dollars, but if any regular or associate member has paid his dues for the year in which he wishes to be transferred to life membership, or has paid his dues for any future year or years, the amount so paid shall be deducted from the fee for life membership.

ARTICLE X

Sec. 2. One copy of the PROCEEDINGS, when published, shall be furnished to each regular and associate member (in return for dues paid), to each life member (in return for life membership fee paid), to honorary members, to each corresponding society of the Institute, and to such libraries and periodicals as may be determined upon by the Board of Control.

The PROCEEDINGS are published every two months, and anyone may subscribe for them. The annual subscription is $3.00; single copies, 50 cents. Annual dues for members and associate members, $2.00. Fee for life membership, $30.00.

All letters should be addressed U. S. Naval Institute, Annapolis, Md., and all checks, drafts, and money orders should be made payable to the same.

SPECIAL NOTICE

NAVAL INSTITUTE PRIZE ESSAY, 1917

A prize of two hundred dollars, with a gold medal, and a life-membership (unless the author is already a life member) in the Institute, is offered by the Naval Institute for the best essay presented on any subject pertaining to the naval profession.

On the opposite page are given suggested topics. Essays are not limited to these topics and no additional weight will be given an essay in awarding the prize because it is written on one of these suggested topics over one written on any subject pertaining to the naval profession.

The following rules will govern this competition:

1. The award for the prize will be made by the Board of Control, voting by ballot and without knowledge of the names of the competitors.

2. Each competitor to send his essay in a sealed envelope to the Secretary and Treasurer on or before January 1, 1917. The name of the writer shall not be given in this envelope, but instead thereof a motto. Accompanying the essay a separate sealed envelope will be sent to the Secretary and Treasurer, with the motto on the outside and writer's name and motto inside. This envelope is not to be opened until after the decision of the Board.

3. The successful essay to be published in the PROCEEDINGS of the Institute; and the essays of other competitors, receiving honorable mention, to be published also, at the discretion of the Board of Control; and no change shall be made in the text of any competitive essay, published in the PROCEEDINGS of the Institute, after it leaves the hands of the Board.

4. If, in the opinion of the Board of Control, the best essay presented is not of sufficient merit to be awarded the prize, it may receive "Honorable Mention" or such other distinction as the Board may decide.

5. In case one or more essays receive "Honorable Mention," the writers thereof will receive a minimum prize of seventy-five dollars and a life-membership (unless the author is already a life member) in the Institute, the actual amounts of the awards to be decided by the Board of Control in each case.

6. An essay not having received honorable mention may be published also, at the discretion of the Board of Control, but only with the consent of the author.

7. The essay is limited to fifty (50) printed pages in the PROCEEDINGS of the Institute.

8. It is requested that all essays be submitted typewritten and in duplicate, if practicable; essays submitted written in longhand and in single copy will, however, receive equal consideration.

9. In the event of the prize being awarded to the winner of a previous year, a gold clasp, suitably engraved, will be given in lieu of the gold medal.

By direction of the Board of Control.

J. W. GREENSLADE,
Lieut. Commander, U. S. N., Secretary and Treasurer

PRIZE ESSAY TOPICS

SUGGESTED AT THE INVITATION OF THE BOARD OF CONTROL

BY

THE PRESIDENT OF THE NAVAL INSTITUTE, THE SUPERINTENDENT OF THE NAVAL ACADEMY, THE PRESIDENT OF THE NAVAL WAR COLLEGE, AND THE COMMANDERS-IN-CHIEF OF THE ATLANTIC, PACIFIC AND ASIATIC FLEETS.

"The Mutual Relations of Gunnery and Tactics."

"The Place of the Naval Officer in International Affairs."

"The Evolution of Naval Doctrine from National Character."

"The Training of Enlisted Personnel to Produce Modern Man-o'-Warsmen: (a) Military Training; (b) Moral Training; (c) Education."

"The Organization, Employment and Training of Reserve Fleets and Flotillas."

"A Personnel Reserve for the Naval Service."

"Value of Speed as an Offensive Element in Battleship Strategy and Tactics, as Compared with Armor."

LIST OF PRIZE ESSAYS

1879

Naval Education. Prize Essay, 1879. By Lieut. Comdr. A. D. Brown, U. S. N.

NAVAL EDUCATION. First Honorable Mention. By Lieut. Comdr. C. F. Goodrich, U. S. N.

NAVAL EDUCATION. Second Honorable Mention. By Commander A. T. Mahan, U. S. N.

1880

"The Naval Policy of the United States." Prize Essay, 1880. By Lieutenant Charles Belknap, U. S. N.

1881

The Type of (I) Armored Vessel, (II) Cruiser best suited to the Present Needs of the United States. Prize Essay, 1881. By Lieutenant E. W. Very, U. S. N.

SECOND PRIZE ESSAY, 1881. By Lieutenant Seaton Schroeder, U. S. N.

1882

Our Merchant Marine: The Causes of its Decline and the Means to be taken for its Revival. "Nil clarius aquis." Prize Essay, 1882. By Lieutenant J. D. Kelley, U. S. N.

"MAIS IL FAUT CULTIVER NOTRE JARDIN." Honorable Mention. By Master C. G. Calkins, U. S. N.

"SPERO MELIORA." Honorable Mention. By Lieut. Comdr. F. E. Chadwick, U. S. N.

"CAUSA LATET: VIS EST NOTISSIMA." Honorable Mention. By Lieutenant R. Wainwright, U. S. N.

1883

How may the Sphere of Usefulness of Naval Officers be extended in Time of Peace with Advantage to the Country and the Naval Service? "Pour encourager les Autres." Prize Essay, 1883. By Lieutenant Carlos G. Calkins, U. S. N.

"SEMPER PARATUS." First Honorable Mention. By Commander N. H. Farquhar, U. S. N.

"CULIBET IN ARTE SUA CREDENDUM EST." Second Honorable Mention By Captain A. P. Cooke, U. S. N.

1884

The Reconstruction and Increase of the Navy. Prize Essay, 1884. By Ensign W. I. Chambers, U. S. N.

1885

Inducements for Retaining Trained Seamen in the Navy, and Best System of Rewards for Long and Faithful Service. Prize Essay, 1885. By Commander N. H. Farquhar, U. S. N.

1886

What Changes in Organization and Drill are Necessary to Sail and Fight Effectively Our Warships of Latest Type? "Scire quod nescias." Prize Essay, 1886. By Lieutenant Carlos G. Calkins, U. S. N.

THE RESULT OF ALL NAVAL ADMINISTRATION AND EFFORTS FINDS ITS EXPRESSION IN GOOD ORGANIZATION AND THOROUGH DRILL ON BOARD OF SUITABLE SHIPS. Honorable Mention. By Ensign W. L. Rodgers, U. S. N.

1887

The Naval Brigade: its Organization, Equipment and Tactics. "In hoc signo vinces." Prize Essay, 1887. By Lieutenant C. T. Hutchins.

1888

Torpedoes. Prize Essay, 1888. By Lieut. Comdr. W. W. Reisinger, U. S. N.

1891

The Enlistment, Training and Organization of Crews for our Ships of War. Prize Essay, 1891. By Ensign A. P. Niblack, U. S. N.

DISPOSITION AND EMPLOYMENT OF THE FLEET: SHIP AND SQUADRON DRILL. Honorable Mention, 1891. By Lieutenant R. C. Smith, U. S. N.

1892

Torpedo-boats: their Organization and Conduct. Prize Essay, 1892. By Wm. Laird Clowes.

1894

The U. S. S. Vesuvius, with Special Reference to her Pneumatic Battery. Prize Essay, 1894. By Lieut. Comdr. Seaton Schroeder, U. S. N.

NAVAL REFORM. Honorable Mention, 1894. By Passed Assistant Engineer F. M. Bennett, U. S. N.

1895

Tactical Problems in Naval Warfare. Prize Essay, 1895. By Lieut. Comdr. Richard Wainwright, U. S. N.

A SUMMARY OF THE SITUATION AND OUTLOOK IN EUROPE. An Introduction to the Study of Coming War. Honorable Mention, 1895. By Richmond Pearson Hobson, Assistant Naval Constructor, U. S. N.

SUGGESTIONS FOR INCREASING THE EFFICIENCY OF OUR NEW SHIPS. Honorable Mention, 1895. By Naval Constructor Wm. J. Baxter, U. S. N.

THE BATTLE OF THE YALU. Honorable Mention, 1895. By Ensign Frank Marble, U. S. N.

1896

The Tactics of Ships in the Line of Battle. Prize Essay, 1896. By Lieutenant A. P. Niblack, U. S. N.

THE ORGANIZATION, TRAINING AND DISCIPLINE OF THE NAVY PERSONNEL AS VIEWED FROM THE SHIP. Honorable Mention, 1896. By Lieutenant Wm. F. Fullam, U. S. N.

NAVAL APPRENTICES, INDUCEMENTS, ENLISTING AND TRAINING. The Seaman Branch of the Navy. Honorable Mention, 1896. By Ensign Ryland D. Tisdale, U. S. N.

THE COMPOSITION OF THE FLEET. Honorable Mention, 1896. By Lieutenant John M. Ellicott, U. S. N.

1897

Torpedo-boat Policy. Prize Essay, 1897. By Lieutenant R. C. Smith, U. S. N.

A PROPOSED UNIFORM COURSE OF INSTRUCTION FOR THE NAVAL MILITIA. Honorable Mention, 1897. By H. G. Dohrman, Associate Member, U. S. N. I.

TORPEDOES IN EXERCISE AND BATTLE. Honorable Mention, 1897. By Lieutenant J. M. Ellicott, U. S. N.

1898

Esprit de Corps: A Tract for the Times. Prize Essay, 1898. By Captain Caspar Frederick Goodrich, U. S. N.

OUR NAVAL POWER. Honorable Mention, 1898. By Lieut. Comdr. Richard Wainwright, U. S. N.

TARGET PRACTICE AND THE TRAINING OF GUN CAPTAINS. Honorable Mention, 1898. By Ensign R. H. Jackson, U. S. N.

1900

Torpedo Craft: Types and Employment. Prize Essay, 1900. By Lieutenant R. H. Jackson, U. S. N.

THE AUTOMOBILE TORPEDO AND ITS USES. Honorable Mention, 1900. By Lieutenant L. H. Chandler, U. S. N.

1901

Naval Administration and Organization. Prize Essay, 1901. By Lieutenant John Hood, U. S. N.

1903

Gunnery in Our Navy. The Causes of its Inferiority and Their Remedies. Prize Essay, 1903. By Professor Philip R. Alger, U. S. N.

A NAVAL TRAINING POLICY AND SYSTEM. Honorable Mention, 1903. By Lieutenant James H. Reid, U. S. N.

SYSTEMATIC TRAINING OF THE ENLISTED PERSONNEL OF THE NAVY. Honorable Mention, 1903. By Lieutenant C. L. Hussey, U. S. N.

OUR TORPEDO-BOAT FLOTILLA. The Training Needed to Insure its Efficiency. Honorable Mention, 1903. By Lieutenant E. L. Beach, U. S. N.

1904

The Fleet and Its Personnel. Prize Essay, 1904. By Lieutenant S. P. Fullinwider, U. S. N.

A PLEA FOR A HIGHER PHYSICAL, MORAL AND INTELLECTUAL STANDARD OF THE PERSONNEL FOR THE NAVY. Honorable Mention, 1904. By Medical Inspector Howard E. Ames, U. S. N.

1905

American Naval Policy. Prize Essay, 1905. By Commander Bradley A. Fiske, U. S. N.

THE DEPARTMENT OF THE NAVY. Honorable Mention, 1905. By Rear Admiral Stephen B. Luce, U. S. N.

1906

Promotion by Selection. Prize Essay, 1906. By Commander Hawley O. Rittenhouse, U. S. N.

THE ELEMENTS OF FLEET TACTICS. First Honorable Mention, 1906. By Lieut. Comdr. A. P. Niblack, U. S. N.

GLEANINGS FROM THE SEA OF JAPAN. Second Honorable Mention, 1906. By Captain Seaton Schroeder, U. S. N.

THE PURCHASE SYSTEM OF THE NAVY. Third Honorable Mention, 1906. By Pay Inspector J. A. Mudd, U. S. N.

1907

Storekeeping at the Navy Yards. Prize Essay, 1907. By Pay Inspector John A. Mudd, U. S. N.

BATTLE REHEARSALS. A few thoughts on our next step in Fleet-Gunnery. First Honorable Mention, 1907. By Lieut. Comdr. Yates Stirling, U. S. N.

THE NAVAL PROFESSION. Second Honorable Mention, 1907. By Commander Bradley A. Fiske, U. S. N.

1908

A Few Hints to the Study of Naval Tactics. Prize Essay, 1908. By Lieutenant W. S. Pye, U. S. N.

THE MONEY FOR THE NAVY. First Honorable Mention, 1908. By Pay Inspector John A. Mudd, U. S. N.

THE NATION'S DEFENCE—THE OFFENSIVE FLEET. How Shall We Prepare It for Battle? Second Honorable Mention, 1908. By Lieut. Commander Yates Stirling, U. S. N.

1909

Some Ideas about Organization on Board Ship. Prize Essay, 1909. By Lieutenant Ernest J. King, U. S. N.

THE NAVY AND COAST DEFENCE. Honorable Mention, 1909. By Commodore W. H. Beehler, U. S. N.

THE REORGANIZATION OF THE NAVAL ESTABLISHMENT. Honorable Mention, 1909. By Pay Inspector J. A. Mudd, U. S. N.

A PLEA FOR PHYSICAL TRAINING IN THE NAVY. Honorable Mention, 1909. By Commander A. P. Niblack, U. S. N.

1910

The Merchant Marine and the Navy. Prize Essay, 1910. By Naval Constructor T. G. Roberts, U. S. N.

THE NAVAL STRATEGY OF THE RUSSO-JAPANESE WAR. Honorable Mention, 1910. By Lieutenant Lyman A. Cotton, U. S. N.

1911

Navy Yard Economy. Prize Essay, 1911. By Paymaster Charles Conrad, U. S. N.

NAVAL POWER. Honorable Mention, 1911. By Captain Bradley A. Fiske, U. S. N.

WANTED—FIRST AID. Honorable Mention, 1911. By Commander C. C. Marsh, U. S. N.

1912

Naval Might. Prize Essay, 1912. By Lieutenant Ridgely Hunt, U. S. N. (retired).

INSPECTION DUTY AT THE NAVY YARDS. Honorable Mention, 1912. By Lieut. Commander T. D. Parker, U. S. N.

1913

The Greatest Need of the Atlantic Fleet. Prize Essay, 1913. By Lieut. Commander Harry E. Yarnell, U. S. N.

NAVY DEPARTMENT ORGANIZATION. A Study of Principles. First Honorable Mention, 1913. By Commander Yates Stirling, Jr., U. S. N.

TRAINED INITIATIVE AND UNITY OF ACTION. Second Honorable Mention, 1913. By Lieut. Commander Dudley W. Knox, U. S. N.

1914

The Great Lesson from Nelson for To-Day. Prize Essay, 1914. By Lieutenant Commander Dudley W. Knox, U. S. Navy.

NAVAL POLICY AS IT RELATES TO THE SHORE ESTABLISHMENT AND THE MAINTENANCE OF THE FLEET. Honorable Mention, 1914. By Captain John Hood, U. S. Navy.

OLD PRINCIPLES AND MODERN APPLICATIONS. Honorable Mention, 1914. By Lieutenant Commander Dudley W. Knox, U. S. Navy.

MILITARY PREPAREDNESS. Honorable Mention, 1914. By Naval Constructor Richard D. Gatewood, U. S. Navy.

1915

The Rôle of Doctrine in Naval Warfare. Prize Essay, 1915. By Lieutenant Commander Dudley W. Knox, U. S. Navy.

AN AIR FLEET: OUR PRESSING NAVAL WANT. First Honorable Mention, 1915. By Lieutenant Commander Thomas Drayton Parker, U. S. Navy.

TACTICS. Second Honorable Mention, 1915. By Ensign H. H. Frost, U. S. Navy.

DEFENSE AGAINST SURPRISE TORPEDO ATTACK. Third Honorable Mention, 1915. By Ensign R. T. Merrill, 2d, U. S. Navy.

1916

The Moral Factor in War. Prize Essay, 1916. By Lieutenant (J. G.) H. H. Frost, U. S. Navy.

NAVAL PERSONNEL. First Honorable Mention, 1916. By Lieutenant Commander J. K. Taussig, U. S. Navy.

EDUCATION AT THE U. S. NAVAL ACADEMY. Second Honorable Mention, 1916. By Lieutenant Ridgely Hunt, U. S. Navy.

SOME UNDERLYING PRINCIPLES OF MORALE. Third Honorable Mention, 1916. By Commander Dudley W. Knox, U. S. Navy.

LARGE *vs.* A GREATER NUMBER OF SMALLER BATTLESHIPS. Lippincott Prize Essay. By Lieutenant Commander Thomas Lee Johnson, U. S. Navy.

LIST OF ARTICLES RELATED TO WAR COLLEGE WORK

Attention is invited to the following articles which have appeared in the PROCEEDINGS during the past three years; they treat of subjects which closely concern Naval War College Work; a perusal of them should prove profitable:

1914

WAR AND POLICY. By Captain J. S. McKean, U. S. Navy. No. 149.

MORAL TRAINING IN PREPARATION FOR WAR. By Charles M. Bakewell. No. 149.

THE GREAT LESSON FROM NELSON FOR TO-DAY. By Lieut. Commander D. W. Knox, U. S. Navy, P. E. No. 150.

NAVAL POLICY AS IT RELATES TO THE SHORE ESTABLISHMENT AND THE MAINTENANCE OF THE FLEET. By Captain John Hood, U. S. Navy, H. M., 1914. No. 150.

DETAILS OF NAVY DEPARTMENT ADMINISTRATION: NAVY DEPARTMENT POLICIES. By Lieut. Commander N. L. Jones, U. S. Navy. No. 150.

MILITARY PREPAREDNESS. By Naval Constructor Richard Gatewood, U. S. Navy, H. M., 1914. No. 151.

WHAT SHOULD BE THE RELATIONS BETWEEN BATTLE AND RESERVE FLEETS. By Captain W. S. Sims, U. S. Navy. No. 151.

OLD PRINCIPLES AND MODERN APPLICATIONS. By Dudley W. Knox, U. S. Navy, H. M., 1914. No. 152.

THE BATTLE OF THE SEA OF JAPAN. Translation Japanese General Staff Report. By Captain W. T. Hoadley, U. S. Marine Corps. No. 152.

SOME FOREIGN AND OTHER VIEWS OF WAR AND THE STUDY AND CONDUCT OF WAR. By Captain Albert Gleaves, U. S. Navy. No. 153.

STRATEGIC PROBLEMS AND THEIR SOLUTION. By Captain R. von Labres, I. G. N. Translated by Surgeon J. F. Leys, U. S. Navy. No. 153.

1915

EMPLOYMENT OF TORPEDO VESSELS IN NIGHT SEARCH. Translation. By Lieut. Commander W. N. Jeffers, U. S. Navy. No. 155.

EXTRACTS FROM MAHAN'S NAVAL STRATEGY. By Lieutenant W. T. Lightle, U. S. Navy. No. 155.

THE RÔLE OF DOCTRINE IN NAVAL WARFARE. Prize Essay. By Commander Dudley W. Knox, U. S. Navy. No. 156.

NAVAL WAR COLLEGE PRINCIPLES AND METHODS APPLIED AFLOAT. By Captain W. S. Sims, U. S. Navy. No. 156.

THE WORK AHEAD OF NAVAL AVIATION. Lieutenant R. C. Saufley, U. S. Navy. No. 156.

AN AIR FLEET, OUR PRESSING NAVAL WANT. By Commander T. D. Parker, U. S. Navy. No. 157.

THE ESTIMATE OF THE SITUATION. By Rear Admiral Austin M. Knight, U. S. Navy. No. 157.

THE CONTROL OF FLEETS IN ACTION. By Lieutenant H. H. Frost, U. S. Navy. No. 158.

NAVAL SCOUTS. By Commander Ralph Earle, U. S. Navy. No. 158.

PEACE OR WAR? By Commander A. W. Hinds, U. S. Navy. No. 159.

BATTLE TACTICS. By Lieutenant R. A. Dawes, U. S. Navy. No. 160.

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THE GENERAL PROBLEM OF NAVAL WARFARE. By Comdr. Dudley W. Knox, U. S. Navy. No. 161.

NOTES ON NAVAL TACTICS. By Lieut. Comdr. H. E. Yarnell, U. S. Navy. No. 161.

THE MORAL FACTOR IN WAR. By Lieutenant (J. G.) H. H. Frost, U. S. Navy. No. 162.

NAVAL STRATEGY. By Rear Admiral Bradley A. Fiske, U. S. Navy. No. 162.

WANTED ! A NAVAL MILITIA MISSION. By Lieut. Comdr. R. R. Riggs, U. S. Navy (retired). No. 162.

TERRITORIAL WATERS. By Lieut. Comdr. H. G. Sparrow, U. S. Navy, No. 162.

EDUCATION AT THE U. S. NAVAL ACADEMY. By Lieutenant Ridgeley Hunt, U. S. Navy. No. 163.

THE INDUSTRIAL IN MODERN WAR. By Naval Constructor R. D. Gatewood, U. S. Navy. No. 163.

LARGE *vs.* A GREATER NUMBER OF SMALLER BATTLESHIPS. By Lieut. Comdr. T. L. Johnson, U. S. Navy. No. 164.

THE GREATEST NEED OF THE U. S. NAVY: PROPER ORGANIZATION FOR THE SUCCESSFUL CONDUCT OF WAR. By Lieut. Comdr. W. P. Cronan, U. S. Navy. No. 164.